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ON SO-CALLED "CONGENITAL CHOREA."

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The disease to which the term chorea has come to be almost entirely confined, viz., chorea minor, or Sydenham's chorea, is essentially a disease of childhood, the vast majority of cases occurring between the ages of five and fifteen; but common though it be in childhood, it is very rare indeed in early infancy, very few cases having been recorded under four years of age. One or two have been met with in children at the breast, and from time to time accounts appear in the medical journals of instances of "congenital chorea." In systematic treatises on medicine these cases, as a rule, are not even referred to. Hilton Fagge, however, mentioned Richter's two cases (Cases III. and IV. in the following paper) and Long Fox's case (Case V.), and apparently accepted them as true examples of chorea (*Principles and Practice of Medicine*, 1886, vol. i. p. 639). Other writers of monographs on the subject—*e. g.*, Sturges, Angel Money, and others—make no reference to any congenital cases.

Gowers (*Handbook of Diseases of the Nervous System*, vol. ii., first edition) makes no mention of congenital chorea in his article on chorea; but on page 380, under the heading of "Infantile Meningeal Hemorrhage," he says: "When the spontaneous movements constitute the most conspicuous symptom the state has been described as 'congenital chorea.'" He, therefore, evidently regards these cases as due to irritation of the motor part of the cerebral cortex due to meningeal hemorrhage at the time of birth.

A case which came under my care early in this year directed my

attention toward and aroused my interest in the whole subject of congenital chorea, and raised the question whether cases really do occur which can fairly be classed as examples of this condition, or whether all recorded cases are not rather to be regarded as the result of irritative lesions of the cortical motor areas in the brain, and not as due to a merely functional instability of those centres such as presumably exists in true chorea minor. In all the cases, with the exception of one (that of Heller, which belongs to an entirely different category from the others), the disease has been of an essentially chronic nature, lasting for years or persisting through life, and this is, I think, sufficient reason for definitely separating the condition from Sydenham's chorea, the duration of which is usually to be measured by weeks, and when apparently indefinitely prolonged there are marked variations in the violence of the choreic movements at different periods of the illness, suggesting that we have not to deal with one attack of chorea, but with a series of relapses, a fresh attack commencing before the former one has passed away.

In these cases of so-called congenital chorea, on the other hand, the movements either remain apparently unaffected by the lapse of time, or there is a gradual improvement up to a certain point, though complete cessation of the movements has not been recorded; indeed, in some few cases the disease appears to have been of a progressive character.

Of late years some of these have been regarded as cases of Huntington's chorea, a disease with which they have certainly more points of resemblance than with Sydenham's.

This chronic, progressive, hereditary chorea, to which the attention of the profession was first effectually drawn by Huntington (*Philadelphia Medical and Surgical Reporter*, April 13, 1872, No. 15), although cases had been previously described, is distinguished chiefly by its affecting various members of the same family, by its usually appearing between the ages of thirty and forty, and by its hereditary nature.

Some of the children of an affected parent almost invariably suffer from the disease as soon as they reach the period of life at which it manifests itself; but, if one or two members of the family happen to escape, their children are free from the risk of incurring it; the chain is, as it were, broken.

The movements differ from those of ordinary chorea in that they are slower, and that the patients are able almost to the end to exercise a certain amount of voluntary control over them, so as to do work which does not require very careful, delicate manipulation. The gait also is peculiar, the patient walking in a reeling manner suggestive of intoxication; frequently, for instance, staggering from the sidewalk on to the road, and back again.

Other prominent features of the complaint are its progressive character and the mental deterioration with which it is accompanied, so that finally the movements become very violent and the patient quite demented, toward the end being helpless and bedridden, until death ends the scene.

A case has been recorded in which the disease began as early as eight years of age in a boy, a member of an affected family.

In cases in which an autopsy has been made some atrophy of the cerebral convolutions has been found with an increase of connective tissue—changes very similar, though less in degree (as Osler remarks, *Journal of Nervous and Mental Disease*, 1893, xx. p. 107), to those found in general paralysis of the insane. There is evidently an hereditary tendency to early degeneration of the cerebral cortex, affecting first, and for some time chiefly, the motor areas.

In one case, that of a woman whose sister suffered from similar choreic movements, outgrowths from the dura mater were found pressing upon and causing atrophy of the cortex in the Rolandic and prefrontal areas. (Macleod: *Journal of Mental Science*, July, 1881.) In cases of congenital spastic paraplegia due to meningeal hemorrhage a wasted condition of the central convolutions has been found, the atrophy having been accompanied by induration. A less degree of this would resemble closely the lesion found in cases of Huntington's chorea. It is, therefore, not surprising, that some cases of choreiform movements arising from hemorrhage irritating the motor cortex, or due to a developmental fault, or possibly to a congenital degeneration in this region, should present considerable points of resemblance to these cases, the condition of the cortex being very similar in both sets of cases, although the cause producing it has been different.

No autopsy has yet been made upon any case recorded as one of "congenital chorea;" we can, therefore, only reason from analogy and from the symptoms presented by the patients as to what the lesion is likely to have been in each case.

I now propose to give a short abstract of recorded cases, and to examine briefly the claims of each to be called chorea; prefacing them with an account of my own case, as there is one point in connection with it which I consider to be of very great importance for the purposes of this inquiry.

CASE I.—The patient is a boy, aged twelve years, somewhat small for his age. There was nothing noteworthy during his mother's pregnancy. She had no fright and sustained no shock. The child was born at full time after an easy labor, there being no prolonged delay in the passages, no faulty presentation, and no necessity for instruments. The child was not asphyxiated when born; but from his birth up to the present time he has been in a continuous state of involuntary movement; sudden sharp jactitations and jerkings of the limbs, facial contortions, smacking

of the lips, and occasional long shivering inspirations such as are met with in cases of ordinary chorea.

The movements are bilateral, almost evenly distributed, but possibly more marked on the left side than on the right. They cease entirely during sleep.

There is no evidence of any organic disease or mechanical irritation of the brain. The child has never had fits, there is no muscular rigidity to be made out, and the tendon-reflexes are not exaggerated though well marked. The knee-jerks present the peculiarity so often seen in ordinary choreic children, viz., that when the leg is thrown forward in response to the stimulus, instead of falling back at once it remains extended for an appreciable interval. There is no ankle-clonus.

Muscular force is good, and there is no sign of paralysis.

The boy is very bright and sharp, but his education has been neglected and he has been kept away from school a great deal as the other boys tease and torment him on account of his infirmity. He was, however, somewhat slow in learning to talk and walk—being two years old before he talked, and three years old before he walked. His speech is still of a stammering, explosive character, which is sufficiently accounted for by the involuntary movements of the lips and tongue. In other respects he is not a backward child. The movements are, according to his father's account, gradually getting less. Three years ago he could hardly walk across a room without falling about; now he walks very well and merely presents the appearance of an ordinary choreic child.

He has at times suffered from severe (rheumatic?) pains in his joints, particularly in his shoulders. There is no cardiac lesion. As regards the family history, the only important points are that no other member of the family has been affected in the same way, and that the father had a severe attack of rheumatic fever when a boy, and has been subject to "rheumatics" ever since.

The child's father was absolutely certain that the movements had existed from birth, the midwife who attended the mother at her confinement having drawn attention to them. The patient was most carefully observed on several occasions, and the movements carefully watched. They were always typically choreic, and there was absolutely nothing about them to suggest double athetosis, the total absence of weak-mindedness, paralysis, rigidity, and increase of tendon-reflexes tending to confirm the view that the case was one of true congenital chorea.

I therefore showed the patient at a meeting of the Medical Society of London as an example of this disease. Whether the excitement incidental to appearing before so many strangers had the effect of changing the character of the movements or not I am not prepared to say, but the slow, writhing movements of the fingers, toes, and lips on that occasion were as typical of athetosis as the short, jerky movements previously exhibited by the patient had been typical of chorea.

The lesson to be drawn from this case is an extremely instructive one, viz.: that there is no hard-and-fast line to be drawn between the movements of athetosis on the one hand and that of congenital chorea on the other; that the same patient may at one time furnish an example of the one condition, and again under different circumstances be an equally

striking example of the other. When we consider how much more frequent cases of double athetosis are than these cases of so-called congenital chorea, that both conditions are usually associated with mental feebleness, and that we have in this case a proof that the same patient may, from the same cause, be at one time an excellent example of the one condition, and at another an equally excellent example of the other, I think we are justified in concluding that there are strong reasons for believing that all the choreic cases have really been cases of double athetosis in its choreic form.

Any one seeing the child as I repeatedly saw him when he was quiet and not excited, especially had he been ignorant of the fact that the movements dated from birth, would have unhesitatingly called the case "chorea;" whilst no one could have hesitated to call the condition presented by the child before the medical society "double athetosis."

In the discussion which followed the showing of the case Dr. Archibald Garrod stated that he had under his care at the Children's Hospital, Great Ormond Street, an almost exactly similar case, in which he had wavered for some time between a diagnosis of congenital chorea and one of double athetosis.

As regards previously published cases, some of the accounts given are so very meagre as to be practically useless, and in some frequently quoted cases there is nothing more than a bare statement that they were choreic, and that the movements had dated from birth.

These I will briefly refer to.

Germain Sée (*Mémoires de l'Académie de Médecine*, 1850, p. 449) mentions that Monod had met with cases of congenital chorea, but although barely mentioning the fact he (Sée) throws doubt upon their nature, and inclines to the belief that they were cases of intracranial or intracerebral disease.

Von Ziemmsen also refers to Monod (*Cyclopædia of Medicine*, vol. xiv. p. 420).

Erdmann (*Sitzungsberich. der Gesellsch. für Natur und Heilkund.*, January, 1867) states that two cases of congenital chorea had come under his notice.

Haven (*Boston Medical and Surgical Journal*, 1881, p. 297), in an analysis of two hundred cases of chorea, mentions that two "were said to be congenital."

Collins (*New York Medical Journal*, vol. lvi. p. 159, and *Journal of Nervous and Mental Disease*, 1892, p. 726) mentions the case of a child suffering from choreic movements which had persisted from birth, and whose mother had also suffered from chorea.

It is obvious that nothing can be deduced, one way or another, as to the true nature of these cases from such scanty data, and they may therefore put aside as useless.

Two papers dealing with the subject I have been unable to obtain (Drake: "A Case of Congenital Chorea," *Western Medical and Physical Journal*, Cincinnati, 1827–28, p. 193. Dunn: "Two Cases of Congenital Chorea," *Virginia Medical Monthly*, 1892–93, vol. xix. p. 825).

CASE II.—Of more fully recorded cases the first in chronological order is that of Mayo (*Outlines of Human Pathology*, 1836, p. 170). This case is quoted in almost every article written upon the subject of congenital chorea; I therefore make no apology for transcribing his description almost in full.

The mother when in the fourth month of pregnancy was much frightened. "She was for two months in a state of extreme nervous illness from this cause, but she recovered and went her full time. She remarked, however, that the child was extraordinarily lively in the womb, so that at times she was overcome by the sensations she experienced. The child, a female, at the instant of its birth displayed the *writhing* motions of chorea (the italics are mine); they have continued ever since. She is now thirty years of age, yet looks but an elderly child. Her head is remarkably small and narrow; she is thin and emaciated; the mind is hardly removed from complete idiocy: she says nothing but an ill-articulated 'yes' and 'no,' and is continually turning and *writhing* herself about, except when asleep."

This description is hardly suggestive of "chorea" as we understand the term of the present day, whilst it would answer admirably, as far as it goes, for a description of double athetosis with imbecility. The occurrence of the word *writhing* twice over is in itself extremely suggestive, as no word could be more inapplicable to the sudden sharp movements of chorea, and no word could be more truly descriptive of the slow twisting movements of athetosis. The mental condition of the patient also is more than suggestive of gross organic cerebral lesions, and there is little doubt that the case was one of imperfect cortical development, of meningeal hemorrhage, or of thrombosis. The first condition I consider to have been the most probable from the history. There is naturally great difficulty experienced in judging of the exact nature of these earlier cases, as we have no account of the state of the tendon-reflexes to guide us. This remark applies equally to some of the subsequent cases, even to some published at a period when such an obviously important point should not have been overlooked.

Richter has recorded two cases.

CASE III.—The mother of the first patient was much alarmed by being in the thick of the fighting in Dresden in May, 1849, toward the end of her pregnancy, and immediately afterward the child, a daughter, was born. From its birth violent clonic spasms "of all its voluntary muscles" were observed, which ceased completely during sleep. Richter frequently examined the child and satisfied himself that the special senses and the intelligence of the infant were normal, and diagnosed the case as one of congenital chorea.

As she grew up the movements gradually became less marked, and as

a young woman there were only occasional twitchings of the neck and face, and she was able to do needlework well.

CASE IV.—His second occurred in the daughter of a woman who was greatly shocked and distressed by the sudden death of her husband shortly before the child's birth. Here again there were violent choreic movements observed immediately after delivery which persisted, ceasing only during sleep. These were looked upon as evidence of organic disease of the brain by those who saw the case before Richter. He, however, came to the conclusion that it was a case of chorea, and regarded it as spinal in origin. She learned to walk and talk, but had considerable difficulty with her school-work. She was bright and merry. Her speech was monotonous and complaining in character; and "g" and "ch" were pronounced as "s". When nervous she twisted hands, neck, etc., in a choreic manner.

Both girls were well developed.

In these cases again no mention is made of the state of the reflexes. The description of the movements rather suggests a slight degree of double athetosis than chorea proper, and the slow, steady improvement is in accordance with what one meets with in cases of congenital spastic paraplegia. The lesion must have been a comparatively slight one.

CASE V.—Long Fox (*British Medical Journal*, 1873, vol. ii. p. 9) has recorded a very interesting case of a boy, aged thirteen years, suffering from "congenital chorea." His mother was frightened at the end of the second month of pregnancy. He was born about six weeks before his time. He had had chorea from his birth, and had always been as bad as he was at the time of his admission to hospital, if not worse. Lately he had learned to say a few words. Up to that time he could not speak at all, but could hum tunes in an indistinct way and make various noises. He could not stand or hold anything firmly. His education had been neglected, but he was very sharp and very merry. Most of his movements showed great deficiency of co-ordinating power, but he could combine movements for the purpose of scuttling along the floor in a wonderful manner, one leg being stretched out in front and the other behind, whilst he paddled along with great speed with one hand.

He was almost always in motion, except during sleep, and then was quite still. He had fits at three years old, but not since. There was no rheumatism or heart disease or any morbid family history.

He was put upon arsenic. After a few weeks he began to say more words and was much less restless. He walked with the help of one hand, and could stand without assistance, although on admission he could not lift himself up without being held. He was "exceedingly intelligent." Playing at ninepins brought him on considerably, and so did the association with and imitation of two non-choreic boys in the ward.

This case is an extremely interesting one as showing what may be done by intelligent treatment in such cases. The facts of the boy having been a "seven-months' child" and his having suffered from fits at

three years old point to an extreme instability and probably a want of development of the cortical motor cells. At all events, it is justifiable to presume that their control over the lower motor centres was congenitally less than normal, and I am, therefore, inclined to class this case with those of developmental defect in the motor centres in which motor symptoms predominate, and not with true chorea.

Heller's case (*Wien. med. Wochenschr.*, 1876, vol. xxxvi. p. 456) is an example, as I have mentioned above, of an entirely different disorder to those with which I am now dealing, and will be treated separately later.

Case VI.—Rieder (*Munch. med. Wochenschr.*, 1889, p. 623) has recorded at great length a case of chronic congenital chorea with imbecility. The patient was a woman, aged twenty-six years. There was nothing noteworthy in the family history. Her mother had been frightened during her pregnancy by the sight of a choreic man. From birth she had suffered from involuntary movements of the face and arms; she was also slightly deaf, and this deafness had of late years graudally increased.

She learned to walk at four years of age, and to speak at three; but her speech was very defective, and had not improved. She was irritable and passionate, and her mental power was of a very low order, although she could to a certain extent read and write. She was very easily alarmed.

She was subject to night-terrors, and her sleep was usually very disturbed. A year before Rieder saw the patient she had borne a child, which was the subject of the same involuntary movements as its mother. The child, however, died when little more than a fortnight old.

The symptoms in this case had been marked by progression, the movements being much worse than in infancy. For about a year the patient had complained of pains in the head, coming on every day, and often accompanied by sickness.

The patient wrinkled her forehead, opened and shut her mouth and eyes, twisted and turned her head, stretched out and bent first one then the other finger, then the whole hand moved, the shoulders, and so on. The movements were most severe in the face, and became more severe on intentional movement, as in the attempt to lay hold of anything. Walking was only accomplished with difficulty.

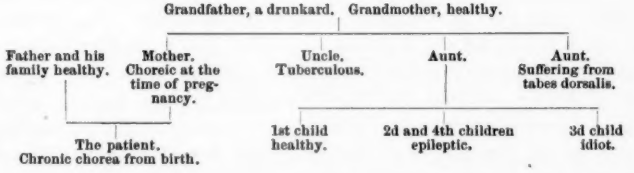
The pupils were dilated and reacted only sluggishly to light. Sensation was normal. Both tendon and superficial reflexes were increased.

In this case we have sufficient evidence of organic cerebral disease in the mental deficiency, deafness and increased reflexes. That such disease was of a developmental character is highly probable, and this probability is strengthened by the fact that the patient's child had the same developmental defect, as evidenced by the involuntary movements displayed during its short life. This case approaches very closely to Huntington's chorea, especially in its progressive and hereditary nature; but it is certainly very far removed from ordinary chorea minor, and

the description of the movements of the hands and fingers is particularly suggestive of double athetosis.

CASE VII.—Gray (*New York Medical Journal*, 1892, vol. lvi. p. 169. *Journal of Nervous and Mental Disease*, 1892, vol. xix. p. 726) has recorded a case which he considered to be one of congenital Huntington's chorea. There had been no similar trouble in other members of the child's family, and the general history was negative. The choreic movements had been noticed immediately after birth. The infant was a seven-months' child. Collins remarked upon this case that the lesion was probably one of lack of development of the cortical motor areas, and that the too apparent lack of mental development could be taken as corroborative evidence of this. He might have added, as further evidence, the premature birth of the child at seven months. To call the case one of Huntington's chorea seems a little far-fetched, as it lacks all three cardinal characteristics of that interesting malady, inasmuch as (1) no other member of the patient's family had suffered from the disease; (2) it had not begun in adult life; (3) there is no mention made of its having been progressive in character. It is true that any one of these peculiarities may be wanting in true cases of Huntington's chorea, but when all are absent together there can be little to go upon in making a diagnosis, and in this case the nature of the movements is not described.

CASE VIII.—Schlesinger (*Zeitschrift für klin. Med.*, Berlin, 1893, vol. xx. pp. 506, 515) gives a very full account of a man, aged twenty-four years, who had suffered from his birth from choreiform movements which had of late years become worse, as had also a difficulty of articulation from which he suffered, and his intellect was progressively becoming more feeble. His mother was suffering from chorea at the time of his birth, and there was a very neurotic family history, the chart of which is as follows:



The mother had relapses of chorea lasting several weeks each year for four years after the patient's birth. The patient was apparently stillborn, the labor lasted a long time, and instruments had to be used. Twitchings in his face and hands were noticed from birth; at six months old he had fits which lasted several hours. He was late in learning to walk, and in his fourth year could only stammer a few words. He was backward in his school-work. From his earliest childhood his temper was ungovernable, and of late years the difficulty of walking and speaking had increased, and there was a striking diminution of intelligence and memory. There was no evidence of alcoholism or syphilis.

The chief points as to the state of the patient when he came under observation were that the forehead was continually wrinkled and the

eyelids pressed firmly together, the upper lip twitched frequently, the lower one less often.

The right side of the face was much more frequently involved than the left. His speech was stammering and monotonous, but by no means "scanning." The hands and arms were quiet, as a rule, but on excitement they twitched. The fingers were spread out and then suddenly flexed, the hand moved upon the wrist, the thumbs adducted and turned in toward the palm. Spontaneous movements occurred in the toes, and the knees were occasionally involuntarily flexed and extended.

There was no spontaneous movement of the muscles of the trunk.

There was considerable analgesia in front of the lower half of the body on the right side. In both upper arms, particularly the right, there was also marked hypalgesia.

The patellar reflex on both sides was very much increased, but there was no ankle-clonus.

The skin-reflexes were greatly increased. The gait was somewhat like that of an intoxicated man, the feet being kept wide apart so as to give a wide base.

After these notes were taken the patient's condition rapidly deteriorated. The movements increased, and the intellect failed; fits of excitement being now followed by depression with a suicidal tendency. Schlesinger concludes that this was a case of meningeal hemorrhage, but regarded the form the disease took as due to an hereditary predisposition to chorea.

I am inclined to agree with him in his diagnosis in this case, as I think it more than probable that a meningeal hemorrhage was the original cause of these movements and of the patient's condition. The labor was exactly of the prolonged, tedious kind which so often causes congenital spastic paraplegia, and in this case the disorders of movement, from irritation of the cortical motor centres, predominated over the paralysis. The state of the reflexes bears out this view. In a patient with such a family history it is not surprising that a condition closely resembling Huntington's chorea should supervene upon these movements of double athetosis, the already existing organic cortical lesion acting as a predisposing cause. But I am extremely doubtful whether any *rôle* in the production of the symptoms should be given to the chorea which the mother suffered with at the time of the patient's birth. There is quite enough to account for all the symptoms without this.

CASE IX.—Diller (AMERICAN JOURNAL OF THE MEDICAL SCIENCES, 1890, vol. xcix. p. 339) has recorded the case of a female imbecile, aged twenty-six years, a patient in the State Hospital for the Insane, Danville, Pa.

The father was alcoholic, the mother died of phthisis. A sister was also an inmate of the asylum. The patient had been feeble-minded and choreic from early childhood. She became unmanageable at home on account of her petulant, quarrelsome nature, and was disposed to seek improper male companions.

The patient was markedly choreic, the movements being typical. All the muscles were affected and equally. The speech was difficult and

halting. The movements ceased during sleep. She stated that she could not remember when she was not affected with the movements, and that she was unable to walk until she was six or seven years old.

In a table which follows (p. 343) Diller enters this case as congenital, and I think, although the evidence given is not conclusive, that it probably was so. But here again we have most likely to deal with a developmental defect of the motor centres, and not with "chorea" in the true sense of the term.

These, then, are the cases from which our knowledge of "congenital chorea" is obtained, and it may be well to recapitulate and to summarize shortly the conclusions that may be drawn from them.

Some of them are too imperfectly recorded to be of any service. Of the remaining ten cases the first (my own) presented under conditions of excitement movements which were indubitably those of double athetosis, and to that category it undoubtedly belongs, although there was no other evidence of any brain-lesion beyond a delay in learning to walk and talk.

Case II. (Mayo's) was also, to judge from the state of the patient's intellect and the writhing character of the movements, an example of the same disease, defective cerebral development affecting largely the motor centres.

In Cases III. and IV. (Richter's) the nature of the movements as described, the mental condition in Case IV., and the slow, steady improvement with lapse of time, exactly corresponding to that which one observes in many cases of congenital spastic paraplegia, all point to a cortical lesion as the cause of the movements. The fact that the muscular jerkings did not entirely cease is also in accordance with this view.

In Case V. (Long Fox's) the patient was a seven-months' child; he had had fits at three years of age, and, in spite of his apparent intelligence, he had not learned to speak at all, although thirteen years old. Here, also, there was probably want of proper development of the cortical motor areas.

Case VI. (Rieder's) furnishes us with abundant evidence of cerebral disease in the imbecility, deafness, and increased reflexes.

Case VII. (Gray's) was a seven-months' child, and the mental capacity was apparently very small. This probably belongs to the same class of imperfect development.

In Case VIII. (Schlesinger's) the prolonged labor, the use of instruments, the asphyxiated condition of the child when born, the movements which followed almost immediately, the imbecility, and the exaggerated reflexes are sufficient to point with almost certainty to meningeal hemorrhage as the cause of the condition. The steady decline in the mental condition of the patient after attaining adult life, and the increase in the movements, certainly assimilate the case very closely to

Huntington's chorea; but in a patient with such a family history of neurosis with an organically damaged brain it is not surprising that this should be the case.

Case IX. (Diller's) is not quite so clear, but the fact of the patient's marked imbecility and the family history point strongly to developmental cerebral defect. It is to be regretted that the condition of the reflexes is not mentioned.

All of these cases were, in my opinion, examples of double athetosis, due either to developmental defect or to meningeal hemorrhage, injuring and irritating the motor cortex. In the two cases which appear to have been progressive (those of Rieder and Schlesinger) the disease approximates very closely to the condition known as Huntington's chorea; but, as in cases of that disease in which autopsies have been made, gross cortical lesions of a degenerate nature, or even actual outgrowths from the meninges, have been found, it is not surprising that the two diseases should resemble one another. It seems to me, however, that there is no justification for the term "congenital chorea" in these cases, and that, if distinction be necessary, "choreiform double athetosis" would be a much better and more truly descriptive title.

Several cases have been published, differing only from the foregoing in that the movements were not observed until some time after birth; *e. g.*, by Richter (*loc. cit.*), Brown-Séquard (*Medical Times and Gazette*, 1863, ii. p. 92), Osler (*Journal of Nervous and Mental Disease*, 1893, vol. xx. pp. 99, 100), and others.

Case X., Heller's case (*Wien. med. Wochenschr.*, 1876, vol. xxvi. p. 456), which I have previously referred to, stands by itself.

The movements appeared soon after birth (how soon is not stated) in an eight-months' child, which weighed only three pounds. They affected the muscles of the head and face, including those of the eyes, the neck, the trunk, and extremities. The tongue was occasionally protruded and again sharply drawn back. They ceased at the end of the second month of the child's life, and did not recur. Small doses of chloral hydrate were given by way of treatment. It may be that these movements were a result of the great want of development of the child, and that they were a continuation of the ordinary intrauterine fœtal movements, as McCann has suggested. ("On Chorea Gravidarum," *Transactions of the Obstetrical Society of London*, November 4, 1891.) But the case remains a unique one, and is certainly the nearest approach to a true case of "congenital chorea" that I have met with in the literature of the subject. Whether the movements were actually congenital or began shortly after birth, is left a little doubtful, the title of the paperbeing "A Case of Congenital Chorea," whilst the text says that at the time of the birth nothing abnormal was noted, and that the movements began soon afterward.

In conclusion, I venture to think that an attentive examination of

these abstracts of recorded cases will show that the existence of true "congenital chorea" is extremely doubtful; or has, at all events, not yet been established.

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SYPHILITIC LESIONS OF THE HEART.

BY H. P. LOOMIS, M.D.,
OF NEW YORK.

ALTHOUGH as early as 1851 Ricord first called the attention of the medical profession to syphilitic lesions of the heart, but very little advance has been made in the pathology of this condition.

This fact has led me during my service of ten years as curator of Bellevue Hospital to note carefully from a large number of autopsies (1500 or more) coming under my personal observation certain pathological changes in the heart which were unquestionably of syphilitic origin, yet which failed in spite of marked symptoms to be diagnosed during life as manifestations of syphilis.

The pathological changes to which I now venture to call attention are the result of these observations.

The most easily recognized and characteristic action of syphilis upon the heart is the development of gummatous tumors in the walls of that organ. These tumors are situated almost invariably in the wall of the left ventricle, although a number of observers have seen them in the right ventricular wall; but no one, as far as I can ascertain, has seen them in the wall of the auricle. Of eight cases of gumma of the heart reported by Lancereaux, in only two was the wall of the right ventricle affected.

The tumors coming under my observation varied in size from a bean up to a large olive. They presented themselves in two forms, the variations being due apparently to the age and stage at which the gumma was observed. They were generally of a gray or yellowish-gray color, of rather firm consistency, homogeneous structure, and with a firm, cheesy-looking centre of a lighter color than the periphery, yet differing materially from the soft, yellow, cheesy centre of a solitary tubercle.

In one of the cases the tumor observed was of a reddish or reddish-gray color, and of soft homogeneous structure. This was probably a recent gumma, in the centre of which no changes had as yet taken place. The diagnosis of this tumor was aided by finding well-marked gumma in the liver.

These tumors were not circumscribed, but their peripheral portions blended indistinctly with the surrounding muscle, between the fibres of

which, under the microscope, could be seen cellular prolongations from the tumor. Once I have seen the tumors multiple, but usually they are single. The endocardium and pericardium, in close proximity to the tumors, did not appear to be necessarily involved.

It is often extremely difficult to diagnose with the naked eye gummata found in the substance of the heart from sarcomata, solitary tubercles, or the beginnings of abscess. Recourse must be had to the microscope. The gummata, composed as they are of small cells, resemble very closely in their structure some of the sarcomata, but can be differentiated by their tendency to form large cheesy centres with amorphous membrane. They are with much greater difficulty distinguished from solitary tubercles. The absence of tubercular processes elsewhere in the body is an aid in diagnosis, but the staining of sections of the tumor for tubercle bacilli is the only method of making a positive diagnosis in certain doubtful cases. In abscess of the heart-wall there is no basement-membrane or bloodvessels between the round cells, and stained sections will generally show specific micro-organisms. Of four cases of syphilitic gumma which have come under my observation on the autopsy-table, none was diagnosed or suspected during life; three of the cases died directly or indirectly from the lesion, and two of them suddenly.

The following history of one of the most recent cases I give in full on account of the mode of death and characteristic appearances found:

At the request of the Coroner a post-mortem examination was made on W. J., aged thirty-five years, who died under the following circumstances: He was found dead on the floor of his bedroom by the servant who came to awake him in the morning. A friend, in whose room he had spent the previous evening, testified that he had left him about eleven o'clock, apparently as well as ever, although, on being questioned, he recalled the fact that he had complained of a distress over his heart two or three times while they were together. The man must have died immediately upon reaching his bedroom, for he was found stretched on the floor with his hat grasped in his hand. Careful inquiry was made of his friends, who stated that he had not been ill in years, nor had he even complained of feeling unwell during the month before his death. They had noticed, however, that in coming up stairs he was a little short of breath. He had attended regularly to business. He was a moderate drinker, only at rare intervals indulging to excess.

Autopsy made twelve hours after body was found.

The man was of strong, robust, and muscular physique, and weighed about 175 pounds. No marks of external injury were found. The liver and kidneys showed the lesions of an extreme, passive congestion, with a moderate cirrhosis of the former organ. A most careful examination of all other organs, including the brain, failed to reveal the slightest abnormality until the heart was opened. Here a lesion was found. A circumscribed tumor of a yellowish-white color, firm consistency, non-capsulated, was found imbedded in the anterior wall of the left ventricle. Its dimensions were $\frac{3}{4} \times 1\frac{1}{4} \times 2$, over one-third of the wall of the left ventricle being involved. Neither the endocardium nor

the pericardium over the tumor was thickened. The heart weighed sixteen ounces. The left ventricle was very much dilated, and as a result there was marked insufficiency of the mitral valve. There was no hypertrophy of the heart-wall. The valves were normal. The endocardium unaffected. A large, soft, red, non-adherent blood-clot filled the cavity of the left ventricle. The right ventricle was full of blood, slightly dilated, and its wall somewhat thickened. Coronary arteries were normal. The thoracic and abdominal aorta showed the lesion of an extensive aortitis involving the greater portion of its inner coat.

Syphilitic heart.

Microscopical appearance. A section, cut so as to include the heart-wall and the greater portion of the tumor, showed the following microscopical structure: It was composed of small, round cells, with here and there near the centre cheesy spots. In a few places giant cells could be seen, as also amorphous basement-substance between the round cells. In places young connective-tissue formations could be seen. The tumor was moderately supplied with small bloodvessels in its outer portion. It was not encapsulated. The round cells could be seen running in between the muscle-fibres in its external zone. Sections of the tumor

were stained for tubercle bacilli with negative results. Grams's method failed to reveal the presence of any micro-organisms.

From a careful examination of all portions of the tumor an unqualified diagnosis of a syphilitic gumma was made. This case is of interest, as the tumor was the indirect cause of the man's sudden death, which must be explained by sudden overdistention of the left ventricle, and its inability to empty itself. Nearly one-half of the muscle-fibres of the left ventricular wall were destroyed by the new growth.

CASE II. was that of a young prostitute, who had contracted syphilis three years before admittance to the hospital. She presented the appearance of one suffering from advanced cardiac disease. There were intense dyspnœa, puffiness of the face, blueness of the surface and extremities, with marked evidence of cardiac failure. The patient died of asphyxia twenty-four hours after admittance. A small tumor occupied the anterior wall of the right ventricle, the muscle-fibre of which had been entirely transformed. The ventricle was markedly dilated and its walls thin. A microscopical examination of the tumor showed it to be a gumma.

CASE III. was that of a young woman, twenty years of age, a prostitute, who gave the following history: She had borne three children and had had two miscarriages. She had contracted syphilis as nearly as could be ascertained about two years before she came under observation. She entered the hospital suffering from lobar pneumonia, having had a chill four days before admittance. The heart-sounds appeared normal; the pulse very rapid and feeble. She had no swelling of her feet or legs, although this condition had always been present during her pregnancies. Patient died on the third day after entering the hospital. On autopsy the entire right lung was found to be in the third stage of lobar pneumonia. The liver was normal, the spleen greatly enlarged, and the kidneys presented the lesions of a moderate chronic diffuse nephritis. Pyosalpinx and purulent oöphoritis were present, and on the cervix uteri was seen a large ulceration which presented a syphilitic appearance. The heart was normal in size. No change was evident in its cavities or in the valves. A few small atheromatous patches were noticed in the aorta just above the valves. Two tumors the size of a French olive were imbedded in the wall of the left ventricle near the auriculo-ventricular septum; one an inch below the aortic valve, the other below and about an inch from the apex. The tumors were circumscribed, of a whitish-yellow color, and hard consistency. A section of one of the tumors under the microscope showed that the centre was in a condition of coagulatory necrosis, and that the peripheral zone was made up of round cells, between which was seen a basement-substance. The round cells extended for a short distance beyond the apparent edge of the tumor, in between the muscle-fibres.

Besides the formation of gummatous tumors, syphilis gives rise to an indurated myocarditis, an affection which in its later stage is hardly distinguishable by its characteristics from fibroid disease due to other causes. It has only been possible to infer the origin of these new growths by the antecedent history of the individual; by the presence of constitutional syphilis, especially gummatous tumors in other situations. It seems probable, as has been suggested by Ziegler, that this form of

inflammatory induration as a consequence of congenital or acquired syphilis is much more common than the development of gummata. I believe that as our knowledge of syphilitic manifestations in the heart becomes more perfect, syphilis will be recognized as an important etiological factor in the production of this by no means rare condition, and many patients with what is now diagnosed as chronic heart disease will apparently recover under an antisyphilitic treatment.

In the cases which have come under my observation the fibroid patches were found principally in the wall of the left ventricle, although a few have been in the wall of the right ventricle. The walls of the heart were almost invariably hypertrophied and the cavities dilated, and where the clinical history was known the death had been slow and apparently due to cardiac exhaustion. It is most probable that the masses of fibrous tissue often found in the substance of the myocardium, and not accompanied by thickening of the ends or pericardium, are syphilitic in origin just as we see the systemic muscles liable to syphilitic inflammation. This syphilitic myocarditis probably originates as an affection of the muscle-arteries in the heart-wall. We must not lose sight of these fibroid areas being the result of infarctions due to changes in the coronary artery.

Fibroid induration of the heart, which is undoubtedly of syphilitic origin, presents three appearances:

1. As a well-defined fibroid area from which the muscle-fibres have almost entirely disappeared. These areas vary generally from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter; are localized, and ordinarily have no connection with the endocardium or pericardium, being situated in the substance of the heart. Appearances similar to these and due to syphilis I have seen in other muscles, especially in the leg and forearm.

2. In well-marked syphilitic cases irregular patches of new fibrous tissue are seen in the wall of the heart. Sometimes these are very diffuse, and often the serous membrane over them is thickened and puckered. These appearances do not differ very much microscopically from fibroid myocarditis due to other conditions, although on careful examination the minute arteries in the heart-wall almost invariably show the evidences of obliterating endocarditis. A similar condition due to syphilis has also shown itself in the muscles of the limbs, and a diagnosis from the symptoms has been made of progressive muscular atrophy, which, however, has rapidly been recovered from under iodide.

3. There appears to be an interstitial myocarditis of syphilitic origin, the appearance, no doubt, being due to the partial absorption of the syphilitic gumma where the outer zone has developed into fibrous tissue and the caseous centre remaining as a fibrous mass.

In looking over the history book of autopsies I find fifteen cases of fibroid myocarditis which have come under my personal observation, and, where the diagnosis has been made by microscopical examination, three of

them were beyond all doubt of syphilitic origin, and presented in sections taken from different places in the heart-wall the appearances above described.

The following is the history of one of the cases:

CASE IV.—George M., aged thirty-six years, was admitted to Bellevue Hospital sixteen hours before death. He was in a comatose condition upon admission, and no history of the case could be obtained.

Autopsy made twenty-four hours after death. A number of gummatous tumors were found throughout the substance of the liver; the largest one the size of an egg. There were the evidences of healed ulcers of the leg, probably syphilitic. The heart was of normal size; the cavity of the left ventricle very much dilated, its wall about half the normal thickness, and of pale-yellow color. The mitral valve was insufficient, but there was no lesion of its orifice; the aortic valve, the aorta, and a number of the small arteries, including those of the brain, which were examined, were found normal. The kidneys, both on gross and microscopical examination, were normal. Microscopical sections taken from different parts of the wall of the left ventricle showed quite extensive areas of new connective tissue formations scattered pretty generally throughout the heart-wall, but more marked nearer the apex. The areas were diffused, the new connective tissue spreading in between the muscle-fibres. They did not appear to surround any nodules, which would suggest their development from the outer zone of old gummata. The amount of connective tissue was as great as any I have ever seen in "old fibroid hearts."

An examination of the head showed that the man had died directly from a fracture of the base, received most probably in a street brawl.

The condition of the heart in this case, taken in connection with the gummata found in the liver, and the absence of renal, general, arterial or valvular disease, can only be accounted for by considering it to be of syphilitic origin. I have always regretted that some of the systemic muscles were not examined microscopically in this case.

I have seen but one case of amyloid degeneration of the heart, and that occurred where extensive amyloid changes were found in both the liver and kidneys. The amyloid material was found between the muscle-fibres of the heart, which had become compressed in places and destroyed. The infiltration occurred principally in the intermuscular connective tissue. The same change was found in the walls of the small arteries.

Lancereaux mentions two cases of waxy degeneration of the heart due to syphilis, and speaks of the amyloid material as being found in the primitive muscle-fibres, a condition I was unable to observe in the case referred to.

Gummatous tumors, fibroid induration, and amyloid infiltration are the only changes which I have personally observed in the walls of the heart and which are undoubtedly due to syphilis. Some observers recognized an endarteritis in the vessels of the myocardium without any other change being found in the heart. They claim that this condition

often induces infarctions, and that some of the small white nodules that have been observed in the cardiac walls are of syphilitic origin. Personally, I have never seen this condition.

The following table, based upon my own cases and a study of the cases of others, illustrates the different ways in which syphilis affects the heart:

Syphilitic Lesions of the Heart.

I. Gummata	1. Recent: soft, reddish or grayish masses. 2. Old: dry, yellow, cheesy nodules.
II. Fibroid induration	Localized: well-defined masses, large size. Diffused: accompanied by inflammation of arteries. Intermediate form: outer zone of gumma develops into fibrous tissue, cheesy centre, remains as fibroid mass.
III. Amyloid degeneration.	
IV. Endarteritis obliterans, often inducing infarctions.	

From an analysis of the cases personally observed, from a study of all cases reported by other observers of syphilitic tumors in the heart-wall to which I have had access, I consider the following as the symptoms most constantly present:

When symptoms of cardiac failure occur during the prime of life for which no cause can be ascertained, such as rheumatic history, valvular disease, arterial changes, or kidney complications, especially in one with a syphilitic history, these should always suggest syphilis as the cause of the condition.

Dyspnœa, distressing palpitation, præcordial uneasiness, syncopal attacks, a feeble and rapid pulse are features observed in most of the cases. The symptoms of the interstitial forms are such as would pertain to any disturbance in the function of the muscular tissue of the heart; so, where a syphilitic patient has suffered for a long time from irregularity of the heart's action, severe palpitation, and interference with the systemic circulation, the possibility that this condition may be due to syphilis should never be lost sight of. A rapid improvement in the patient and the amelioration of the cardiac symptoms which will quickly follow an antisyphilitic treatment, are important factors in arriving at a positive diagnosis of syphilis of the heart.

Patients suffering from changes in the heart due to syphilis either die suddenly with few if any symptoms directly traceable to faulty heart-action or succumb apparently from syphilitic marasmus, with all the symptoms of a slowly increasing cardiac failure.

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ACUTE PANCREATITIS—PARAPANCREATIC ABSCESS—DISSEMINATED FAT-NECROSIS.[1]

By W. S. Thayer, M.D.,
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W. D., aged thirty-four years, married, piano-polisher.

Family history. Father died of "old age," at seventy-eight years; mother died of "dropsy;" six brothers and four sisters living; one brother died at the age of thirty-seven of apoplexy; no history of tuberculosis in any branch of family.

Personal history. As a child had chicken-pox; pneumonia at the age of six years; has been married thirteen years; has had no children. For years he has been a regular drinker of beer and whiskey; he usually takes a drink of whiskey in the morning before breakfast; sometimes more in the day; smokes and chews tobacco. Five years ago the patient states that he was overcome by heat. He was in bed a week, and unconscious at times during that period. Ever since this attack he has had, at times, peculiar "scary spells," a nervous dread of some impending disaster. For about two years he has been subject to nausea in the morning; at times he vomits a greenish, slimy substance. Frequently he vomits his breakfast on account of this feeling of nausea. For the last year and a half the patient has had several attacks of very severe cramp-like pain in the abdomen. The pains are localized in the median line, across the epigastrium and about the umbilicus. The first attack came on at night, and was very severe. The pains are relieved only by morphine, which has been administered in large doses. After the sleep following the relief given by morphine, the patient is free from pain, but with each attack he has generally remained away from work and in the house for from several days to a week. He thinks he has had fever with these attacks, which are also often associated with vomiting. He has had, in all, three or four paroxysms of this nature. The attacks have never been associated with jaundice.

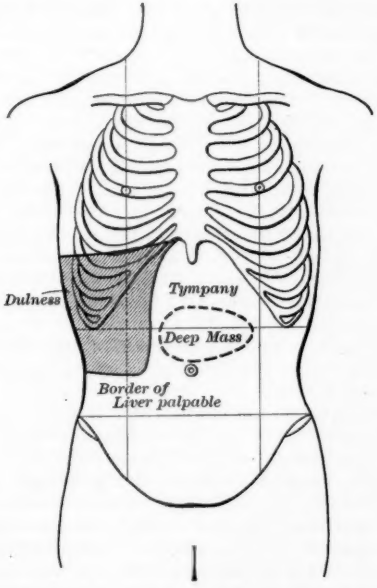
On Friday, the 15th of June, 1895, the patient came home from work on account of a slight sensation of heaviness in the epigastrium and an anxious feeling which he had noticed before to precede the attacks of pain. On Friday night the pain became very severe, and was associated with vomiting. The pain was intense and continuous, and a swelling was noticed just above the umbilicus, in the area of greatest tender-

[1] Read before the Johns Hopkins Hospital Medical Society, Jan. 7, 1895.

ness. There was constipation. During the next week the patient was in bed; at times he was delirious; there was continuous fever; a diagnosis of abscess of the liver was made by his physician.

On June 25th the patient was admitted to the Johns Hopkins Hospital, operation having been advised. He was admitted to the surgical department of Professor Halsted, Dr. J. M. T. Finney in charge. To the courtesy of Professor Halsted and Dr. Finney I owe the opportunity of examining and following this case.

I saw the patient shortly after his entry, and made the following note: "On physical examination the patient is a well-formed man, quite corpulent; lips and mucous membranes of good color. The tongue is coated, the temperature elevated; the mental condition dull; the patient is a little confused. Examination of the *thorax* is negative. On inspection the *abdomen* is full, showing a rather undue prominence in the median line across the epigastrium. Hepatic flatness begins at the sixth rib in the mammillary line, while in the same line the lower border of the liver can, apparently, be felt about on a level with the umbilicus; it is not, however, very distinct, owing to the tension of the abdominal muscles. Liver-flatness is coextensive with this area. Passing toward the median line the resonance becomes tympanitic. Just below the



xiphoid cartilage the resonance is loudly tympanitic, and from the sensation conveyed by palpation there is evidently an air-containing organ (stomach?) just below the skin. Below, between this and the umbilicus, at the point of maximum prominence, is to be felt a deeply-seated mass, over which there is well-marked tympany. The outline of the mass

is indistinct. It is not tender on ordinary palpation. To the right this mass is not to be sharply separated from what would appear to be the liver; to the left it reaches about to the costal region. Pressure over the lower left ribs does not cause pain. In the knee-elbow position nothing further is to be made out. *Splenic* dulness is about normal in area, and does not pass the costo-articular line. There are no glandular enlargements." The appended chart, made at the time of this examination, shows the position of the deep mass, of the hepatic dulness, and the epigastric tympany.

The *urine* was free from albumin or sugar.

The *blood* showed a leucocytosis.

From the fever and general condition of the patient it was believed that there was an acute intraperitoneal inflammatory process. Though the mass was not distinctly fluctuating, it gave, on palpation, the impression that it contained fluid, and the diagnosis lay between an hepatic abscess, an abscess resulting from perforation of the stomach or intestine, and an acute inflammatory process, starting, probably, from the pancreas. While no sharp separation could be made out between the deep mass and the liver, the absence of motion on deep inspiration, the sharp outline of the hepatic dulness, the loss of the lower border of the liver, which was to be made out on palpation to the right of the mass, as well as the entire absence of jaundice, made the presence of an hepatic abscess improbable. A fecal abscess was not to be definitely ruled out, though the situation was certainly unusual. There was nothing in the history of the case to suggest the existence of a perforating gastric or duodenal ulcer. Nothing pointed to implication of the gall-bladder. On the other hand, the situation of the mass, which was deep, was exactly that of the pancreas. The history of the case was, also, not unlike that in other cases of acute pancreatitis which have been reported. The patient was a fat man, with a somewhat alcoholic history. There had been several sharp attacks of pain, localized quite definitely in the pancreatic area, associated with fever, vomiting, and collapse. That the mass might be a pancreatic cyst, or a cyst of the lesser omentum, appeared improbable, owing to the suddenness of the appearance of the tumor, to the inflammatory nature of which the fever and general symptoms strongly pointed.

The diagnosis, then, of acute pancreatitis with disseminated fat-necrosis, and possible sequestration of the pancreas, was made, and an exploratory operation advised.

The operation was performed under ether, on June 27th, by Dr. Finney. An incision was made in the median line above the umbilicus. On opening the peritoneal cavity the large right lobe of the liver was found on the right, much as indicated by the dulness upon the chart. In the median line, adjoining the liver and stomach, a mass of adherent fatty tissue was found, which was filled with numerous discrete and confluent small, opaque, yellowish-white nodules, presenting the characteristic appearance of disseminated fat-necrosis. This mass of tissue was adherent to the stomach and to the liver. Involved in the adhesions over the lower part of the opening passed the transverse colon. The general abdominal cavity was packed off with gauze, and an opening was left for future drainage.

For the next several days the temperature remained somewhat elevated, but the general condition of the patient was fairly good.

On July 3d, on dressing the wound, the tumor-mass was found to have diminished considerably in size.

On the 5th and 6th of July the patient was restless, nauseated, and, at times, delirious. On the evening of the latter date a small coil of intestine was expelled, on coughing, from the lower end of the wound; it was returned without subsequent trouble.

At 10 P.M. on the 7th an examination was made by Dr. Halsted. The examining finger opened, in the upper angle of the wound, a large cavity containing thick, brownish-yellow pus and large masses and shreds of necrotic fat. The finger passed far backward at the bottom of the wound into what appeared to be a cavity in the pancreas. The main excavation represented, evidently, the lesser peritoneal cavity. A drainage-tube was placed in the wound, which continued to discharge. Several days later the wound presented an interesting appearance. Across the middle of the incision stretched the transverse colon, which presented a raw and granulating surface, while above this an opening extended into the large cavity, discharging creamy pus and large masses of necrotic fatty tissue. The cavity was drained freely, and slowly granulated and contracted, while the general condition of the patient improved greatly.

The patient left the hospital on the 23d of September, feeling quite well. The wound at this time was entirely closed excepting for a small sinus, which was two inches deep and one and a half inches in diameter.

The discharge from the cavity on the day after the opening was made showed pus-corpuscles, bacteria in great quantities, numerous fatty acid crystals, with large and small masses of necrotic fat. Cultures were, unfortunately, not made, the opening occurring unexpectedly. No tissue which could be identified as pancreatic was found in the discharge. Some of the detritus discharged from the wound was placed in alcohol and hardened, while sections were examined under the microscope. These masses proved to consist simply of necrotic fatty tissue. Several small pieces of the fat found at the first operation were removed and sent to the pathological laboratory, to Dr. Barker, who made the following report: "The naked eye shows here and there in the tissue opaque white areas which are entirely different in appearance from the rest of the fat. They remind one of particles of tallow; they are slightly grayish and inclined to be granular. Under a low power one observes masses which tend toward a spherical shape, though they are often irregular in outline, with a peculiar yellowish tint. Some of the masses appear more or less homogeneous, showing fissures, transverse or radiating from the centre, not unlike the appearance of hyaline muscle in infectious diseases. Other masses of similar size are seen under the high-power to consist of myriads of short acicular crystals arranged usually more or less irregularly, sometimes radially placed. There are many single crystals and bundles of crystals, resulting evidently from the breaking up of these masses. Some of the large, apparently homogeneous bodies show within them what appear to be large radiating crystals, resembling the so-called margarine crystals. In addition to these there are numerous small masses, the substance of which, in its homogeneous appearance, resembles much that of the larger homogeneous bodies.

"On application of heat, after mixing the mass with salt-solution, the

homogeneous bodies become flatter, sometimes fuse, and show still more the appearance of hyaline muscle.

"On heating the tissue with cold glacial acetic acid the crystals and masses are rapidly transformed into fat-droplets. Each single crystal can be watched changing into a fat-droplet. Many of them which meet one another fuse. There is a marked activity in the masses with an almost immediate transformation of the substance into minute fat-droplets. These remain separate for a while, but later fuse, especially if the cover-glass be pressed. There is a rapid appearance of fat-drops at the edge, with violent streaming movements. Toward the centre the action is very slow and the acicular crystals become at first much more distinct. Both the crystals and the homogeneous substance dissolve.

"On treating with hot glacial acetic acid there is a rapid transformation into fat-globules. In sections the same process takes place, large, clear spaces of fat being seen in the transparent tissue.

"The masses do not dissolve in absolute alcohol nor in ether.

"20 per cent. hydrochloric acid in 70 per cent. alcohol acts as does cold glacial acetic acid, though rather more rapidly. Pure hydrochloric acid produces, also, the same changes.

"10 per cent. caustic potash, hot or cold, produces no marked change.

"Oxalic acid alone has no special influence, but, after treating the nodules of fat-necrosis with glacial acetic acid, the subsequent addition of oxalic acid gives an immediate white precipitate, while later typical crystals of calcic oxalate may be made out microscopically."

These observations confirm entirely the views of Langerhans,[1] who demonstrated that these fat-necroses consisted of a combination of lime with fatty acids.

Cultures on slant agar from the necrotic areas and from the adjacent tissues were negative. Cultures made at the operating-table from similar areas were also negative.

The operation, then, revealed a deep-seated abscess occupying the lesser peritoneal cavity, arising apparently from the pancreas. This was associated with extensive disseminated fat-necrosis.

Acute inflammatory affections of the pancreas have occupied considerable attention during the last five years, since the appearance of Dr. Fitz's Middleton-Goldsmith Lectures on Acute Pancreatitis.[2] Fitz collected from his own cases and literature fifty-four examples of acute pancreatitis, where satisfactory accounts of the cases were given, as well as sixteen cases of extensive hemorrhage from the region of the pancreas. From careful analysis of these cases he concluded that acute inflammation of the pancreas was a "well-characterized disease," one which could and should be more often recognized. He divided these cases into three main classes: (1) *suppurative pancreatitis;* (2) *hemorrhagic pancreatitis*; and (3) *gangrenous pancreatitis.*

[1] Verhandl. d. x. Internat. med. Cong., Bd. ii. abth. iii. p. 144, Berlin, 1891, 8vo., and Virchow's Archiv, Bd. 122, p. 252, 1890.

[2] Acute Pancreatitis, Boston, 1889, 8vo. Also Bost. Med. and Surg. Journal, v. xxi. pp. 181, 205, 227, 1889.

(1) In *suppurative pancreatitis* there exists an acute purulent inflammation of a smaller or larger part of the pancreas.

(2) In *hemorrhagic pancreatitis* the process consists of an acute cellular or fibrino-cellular infiltration of the connective tissue of the organ with a more or less extensive necrosis of the lobules. This inflammatory process is associated with numerous diffuse hemorrhages throughout the organ; these may sometimes be quite extensive; these cases are not to be confused with those instances of extensive apoplectiform hemorrhage which are not so uncommon in the pancreatic region.

(3) The *gangrenous pancreatitis* appears in many cases to be an after-result of an attack of acute hemorrhagic pancreatitis. Here the peritoneal covering of the pancreas may be destroyed, while large or small portions of the organ may be sequestrated. Perforation into neighboring organs may occur, and discharge of the necrotic pancreas by the rectum has been noted in two instances.

Disseminated fat-necrosis was noted in nearly half of the cases of hemorrhagic and gangrenous pancreatitis; it was less commonly seen in the suppurative forms.

Clinically the symptoms presented by these cases formed quite a striking picture, consisting usually of[1] "sudden, severe, often intense, epigastric pain, without obvious cause, in most instances followed by nausea, vomiting, sensitiveness, and tympanitic swelling of the epigastrium. There are prostration, often extreme, frequent collapse, low fever, and a feeble pulse. Obstinate constipation for several days is the rule, but diarrhœa sometimes occurs. If the case does not end fatally in the course of a few days, recovery is possible, or a recurrence of the symptoms in a milder form takes place, and the characteristics of subacute peritonitis are developed." The cases of hemorrhagic pancreatitis are usually very acute and often fatal within a few days. When the process is not immediately fatal it may last a little longer, going on possibly to sequestration and gangrene. The cases of suppurative inflammation of the pancreas may, in some instances, last for weeks or months.

The differential diagnosis, according to Fitz, lies "between an irritant poison, perforation of the digestive or biliary tract, and acute intestinal obstruction."

Since the appearance of this paper a considerable number of cases of acute pancreatitis have been reported by Dr. Fitz[2] himself and by other authors. The study of the literature shows that most of the cases would fall under Fitz's headings of hemorrhagic or gangrenous pancreatitis, where this case also probably belongs, the extensive para-pancreatic abscess being probably a secondary process. A case which

[1] Loc. cit., p. 89.

[2] Trans. Assoc. Amer. Phys., 1890, p. 191, and Bost. Med. and Surg. Journal, vol. cxxvii. p. 573.

was very similar to that above reported was noted by Walsh.[1] Here a similar abscess was found and successfully drained. The symptoms had been of six months' duration, consisting of "sharp burning pains in the epigastric region and tenderness on pressure." The physical examination showed "an area of dulness extending from the ensiform cartilage half way to the umbilicus and reaching to the left costal area."

The cause of these inflammatory processes is not by any means entirely clear. Fitz[2] believes that they are due in most instances to infectious agents entering through the pancreatic duct. The presence of biliary or pancreatic calculi seems to be somewhat favorable to their development.

One of the most interesting points, however, in connection with these cases of acute pancreatitis is the frequent association of the condition which was first described by Balser[3] as disseminated fat-necrosis. The very common association of fat-necroses with acute pancreatitis naturally suggests that there is some close relation between the two processes, and the views as to the nature of these fat-necroses and as to their association with acute pancreatitis it may not be uninteresting to summarize. Balser believed these areas to be due to an excessive growth of fatty tissue, which destroyed the tissue which it surrounded, the central portions of fat becoming necrotic from lack of nutrition. He found these areas of fat-necrosis in the interlobular fat in a number of bodies where no special symptoms had been present during life. The changes in the pancreas he believed to be secondary.

Chiari[4] was unable to find any evidence of this overgrowth of fatty tissue and regarded the process as degenerative, the result simply a condition of general marasmus.

Fitz[5] is inclined to believe in two varieties of fat-necrosis; first, a simple "necrobiotic" fat-necrosis, which has, he believes, no direct relation to severe pancreatic lesions; and secondly, an inflammatory fat-necrosis, which he believes to be generally secondary to an acute inflammation of the gland. This process may be extensive and lead to sequestration of the organ. The fat-necroses are not the cause of the hemorrhages in hemorrhagic pancreatitis. The hemorrhages result from the infectious process, which is also the cause of the necrosis. The inflammatory nature of these areas, Fitz believes, is suggested by the round-celled infiltration which one always finds about their periphery, and by the fact that microscopically he has, in several cases, demonstrated the presence of bacteria in or about the affected spots.

Langerhans[6] in two interesting communications demonstrated that

[1] Medical News, Phila., Dec. 1893, p. 737.
[2] Trans. Assoc. American Phys., 1890.
[3] Virch. Archiv, Bd. 90, S. 520, 1882.
[4] Prager med. Woch., 1893, No. 30, S. 285, and No. 31, S. 299.
[5] Acute Pancreatitis, Boston, 1889, 8vo.
[6] Loc. cit.

the substance of these necrotic areas consisted in a combination of certain lime salts with fatty acids. These observations Prof. Welch has been able to confirm in a number of instances. The observations of Dr. Barker in this case were also wholly confirmatory of these views. Later Langerhans[1] makes the interesting suggestion that the process may possibly result from the action of the fat-splitting ferment from the pancreas upon the surrounding fat-tissue, the fatty acids entering afterward into combination with lime. He asserts that in one instance he has been able to produce similar changes in the subcutaneous fat of a dog by the injection of an extract of the pancreas.[2]

Rolleston[3] suggests that they are rather due to some trophic influence exerted by the abdominal sympathetic system, which is very probably affected in most of these instances by the extension of some morbid process from the pancreas.

Balser[4] in 1892 made a preliminary communication in which he stated that in certain areas of fat-necrosis in hogs he had found numbers of fine rod-like bodies collected often into aster-like masses. These rods were somewhat thickened at one end, resembling the "clubs" of actinomycosis. From their staining-reactions he believed that they were not crystals but bacteria.

Culture-experiments, though unfinished, showed growths of a short rod-like bacterium. No further communication on the subject has, however, appeared.

Prof. Welch[5] in 1891 obtained the bacillus coli communis in pure culture from areas of fat-necrosis associated with acute hemorrhagic pancreatitis. There was, however, a general colon infection following extensive intestinal ulceration, and it is explicitly stated in Dr. Welch's note that he is of the opinion that the fat-necroses were not the result of a primary colon infection. It was more probable, in his opinion, that the organisms gaining entrance into the system through the intestinal ulceration reached these areas which already existed. In a number of other instances since then culture-experiments by Prof. Welch have remained entirely without result.

The true cause, then, of these fat-necroses is not entirely settled. No one to-day believes in the original views of Balser with regard to the overgrowth of fatty tissue.

[1] Festschrift R. Virchow, Berlin, 1891.

[2] Hildebrand recently experimented by tying the pancreatic duct in cats, and in other cases introducing pieces of pancreas into the abdominal cavities of other animals. He asserts that wherever the tissues were exposed to the action of pancreatic juice, alterations resulted which were identical to the fat-necroses observed in man. His experiments led him to believe that these changes are due to the fat-splitting ferment, not to trypsine. La Semaine Médicale, April, 1895, p. 193.

[3] Trans. Path. Soc., London, 1893.

[4] Verhandl. d. xi. Cong. f. Innere Med., Wiesbaden, 1892, p. 451.

[5] Medical News, 1891, v. lix. p. 669.

Rolleston's idea is ingenious, but purely speculative.

It is an undoubted fact, as pointed out by Balser, that fat-necroses may be found in a very considerable number of instances in the interlobular pancreatic fat of individuals who have shown no symptoms pointing to the process during life. These observations have been frequently confirmed in the pathological institute of this university. It is also undoubtedly true that in many of these instances there is no gross evidence of pancreatic disease, while in the great majority of the cases there is nothing to suggest that the condition is purely necrobiotic or marantic. In a like manner it is difficult to account for these necroses by the assumption that they are of infectious origin, particularly in that cultures have so often proved entirely sterile. Especially suggestive is the fact that even in cases associated with marked pancreatitis of undoubted infectious nature cultures have also been sterile. The exact etiological relation of disseminated fat-necrosis to pancreatic disease is not, then, by any means settled. That the process may occur without evidence of pancreatic disease is undoubted. In these instances, however, the areas are almost always limited to the interlobular fat-tissue of the pancreas. On the other hand, it is very probable that the great majority of cases of acute pancreatitis are associated with this process, a proportion probably much larger than indicated by the cases originally collected by Fitz.

The writer has had the good fortune to observe, in the past six years, six cases of acute pancreatitis at autopsy and one at operation. Four of these cases he has been able to follow clinically. In six of these seven instances the process was associated with disseminated fat-necrosis. The only instance in which this association was not present was a case of a small abscess in the pancreas involving an area no larger than a walnut. Here the symptoms produced were not referable to the pancreas, but to complete biliary obstruction caused by implication of the common duct, This case was reported by Dr. Fitz in 1890.[1]

While, as has been said, the relation of disseminated fat-necrosis to acute pancreatitis is not definitely settled, the researches of Langerhans are certainly very suggestive. The process seems in almost all instances to take its origin from the region of the pancreas. The affected areas are usually quite sterile. It has, apparently, been shown that exactly similar changes may be produced by the action of pancreatic juice upon fatty tissue. In the great majority of instances of acute pancreatitis these areas are present. The pancreatic affection would seem in these instances to be certainly infectious in origin, while the individual areas of fat-necrosis are sterile. In view of these facts one can but recognize the possibility that the sequence of events may be, as suggested by

[1] Trans. Assoc. Amer. Phys., 1890.

Langerhans, a primary lesion of the pancreas which offers the opportunity for the escape of the fat-splitting ferment from the organ into the surrounding tissue, and secondary disseminated fat-necrosis, which is inflammatory only in its remote origin; this, by its extension and progress, may lead to most serious results (sequestration, gangrene of the pancreas, parapancreatic suppuration). In this particular instance it is probable that the primary process, whether in the pancreas or in the fatty tissue, was of some duration, as testified to by the several attacks from which the patient had suffered during the past two years. Clinically the case is of considerable interest in showing the possibility and importance of early diagnosis and operation in certain cases of acute pancreatitis. It is, I believe, the second case reported in literature in which a correct diagnosis of acute pancreatitis has been made—the first in which the diagnosis has been followed by a successful operation. That recovery may occur where the process has been most extensive has been shown by the cases of Trafoyer[1] and Chiari,[2] where large portions of the necrotic pancreas were passed by the rectum. This, however, is an outcome which we can expect in but a small proportion of the cases. The great majority, if not fatal during the first few days, would lead probably to a fatal general peritonitis. It is probable, then, that in a certain number of instances where the process is not acutely fatal, and yet is followed by extensive suppuration or sloughing, timely operation may, as in this case, save the life of the patient.

[Since this article was written two very similar cases have been reported, in each of which an ante-mortem diagnosis was made.

In the first case, reported by Körte (*Semaine Médicale*, April, 1895, p. 193), operation and drainage were followed by temporary relief. The patient died, however, eight days later.

In the second case, reported by Atkinson, an operation was not attempted (*Journ. of the Amer. Med. Assoc.*, 1895, xxiv. p. 999).

Cutler (*Boston Med. and Surg. Journal*, 1895, cxxxii. 354) reports also two cases of acute hemorrhagic pancreatitis, in one of which an ante-mortem diagnosis was made.]

[1] Wiener med. Woch., 1880, xxx. 139, 164.

[2] Ibid. p. 142

THE ALLEGED REFLEX CAUSES OF NERVOUS DISEASE.

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IF Sir Thomas Browne were to return to this world, he might add to a new edition of the *Pseudodoxia Epidemica* an interesting chapter on reflex neuroses. He could begin by recalling the opinions which obtained in his own day concerning the causes of melancholy—which, by the way, seem to have served the same useful purpose of a term to conceal diagnostic ignorance that debility does to-day—how "There is almost no part of the body which, being distempered, doth not cause this malady, as the brain and his parts, heart, liver, spleen, stomach, matrix, or womb, pylorus, myrach, mesentery, hypochondries, meseraic veins." He would, of course, mention the ascription of acute anterior poliomyelitis to teething, of paraplegia to disease of the urinary organs, and of spastic paraplegia to phimosis, and he could hardly fail to note the remarkable nervous symptoms still grudgingly attributed to intestinal worms. In his own day, however, scientific skeptic as he was, he testified as an expert before Sir Matthew Hale, that he was "clearly of opinion that the persons [on trial] were bewitched," so that it would be too early to expect him to hold that the opinion that ascribes various neuroses to eyestrain or even to pelvic disease was false.

In order definitely to determine whether the doctrine of reflex neurosis is one which can be accepted, we must first define it. It may be fairly stated, I think, in this way: A slight change occurs in some organ, not sufficient to attract particular attention to the organ itself, to interfere materially with its functions, or to cause noticeable pain or discomfort in it. This change irritates the terminal sensory nerves of the affected organ, and the irritation is communicated to connecting fibres of the ganglionic or spinal nerves, and thus conveyed to a distant organ which may be anatomically healthy. This irritation may excite in the distant organ phenomena which simulate a morbid condition in it, the organ responding "most violently to this slight abnormity, as the alarm-gong sounds in answer to the tap on the button of the distant station."[2]

This doctrine, in former times, received very much support from the cases of nervous disorder—epilepsy, insanity, etc.—which were supposed to be due to pelvic disease, and were promptly cured by treatment of the pelvic disorder after all other methods of treatment had failed. We

[1] Read before the Philadelphia Neurological Society, January 28, 1895.
[2] Engelmann: The hystero-neuroses. Mann's System of Gynæcology, ii. 59.

have all of us heard how the gynecologist has seen "an agonizing asthma cease shortly after the placing of a pessary, intense cardiac pains and insomnia vanish upon the insertion of a tampon, and a single application of electricity cause a violent dyspnœa, with great nervous depression, to disappear, even during the application, whilst the patient was still upon the table, though haunted by suffering and reduced to invalidism for over two years. . . . Even violent psychoses, such as mania, melancholia and epilepsy, will disappear completely upon relief of the uterine lesion."[1]

Few of us, however, have met with such cases in our own practice, and they seem to be growing much rarer. In my own experience I do not recall a case where the nervous condition was materially benefited by treatment of the pelvic organs unless there were definite local symptoms of pelvic disease; and even with actual local disease the treatment of the nervous conditions may greatly relieve the local symptoms.

It is not in accordance with the good Anglo-Saxon spirit of fair play to kick a man when he is down, so that it is not necessary to say very much of the "meddlesome gynecology" which has done so much harm in the past. When in the discussion before the Association of American Physicians in 1891, where the neurological side was so ably sustained by your President, Dr. Lusk could say that he was "tempted to assert that the performance of normal ovariotomy for epilepsy and insanity is to be regarded as hardly better than malpractice," we may conclude that that operation is following the course of the "star of empire," and is seldom performed in our Eastern cities. The admirable pleading of the late Dr. Goodell, too, has done much to teach the gynecologist that a woman has "some organs outside of the pelvis," and yet we still see the evil effects of a constant tinkering at the pelvic organs by men who ignore the rest of the body. It is within a very short time that a young girl came under my care, who had always been weak and neurotic, and who had broken down nervously from anxiety concerning an invalid mother, over-study and over-excitement, and an entire neglect of the necessity of rest. Just at the beginning of her breaking down slight leucorrhœa, without any other special pelvic symptoms, led her physician to ignore all the important elements in the causation of her trouble and to suggest a vaginal examination. A "moral rape" was perpetrated, absolutely nothing abnormal was found in the pelvis, but the mental shock was most disastrous, and added greatly to the length of her illness. "Es ist eine alte Geschichte," but the moral of it has not yet been learned by the profession at large.

There are, of course, cases where the anæmia caused by extreme menorrhagia, the toxins absorbed from gonococcal infection or malignant

[1] Engelmann. Loc. cit., p. 80.

disease, or the exhaustion which may follow the severe pains of dysmenorrhœa may give rise secondarily to nervous disease; but such cases are outside of the limits of our definition, and need not be discussed.

There are many reasons why this doctrine of reflex neuroses, now, so far as pelvic diseases go, decadent, should have won favor. If, in an obstinate case of nervous exhaustion or hysteria, or in a grave case of epilepsy or melancholia, we could find a cause for all the trouble in a slight lesion of a distant organ, and, by curing or removing that lesion, cure the nervous trouble, it would certainly be worth the attempt. Such a cure, too, would speak loudly for the acumen of the physician who exercises it, and naturally every physician would gladly win such fame; so that, when a new source for a reflex neurosis is advocated, we find a host of men, who know less than they ought of nervous diseases, ready to attribute all the affections which they cannot explain to this cause.

One reason for the persistence of this doctrine is the failure of the physician to comprehend the various morbid conditions manifested in hysteria and neurasthenia. There are many women, and not a few men, who are always in a state of unstable nervous equilibrium. They have, perhaps, a scanty supply of nervous force, which enables them to get through an ordinary day without any great difficulty; but they have no reserve of force. Any trifling accident, menstruation, coryza, a spoonful too much of salad, a cup of coffee, an unfortunate investment, a quarrel with the cook, or an unbecoming bonnet, will lead to a temporary nervous bankruptcy which excites some sort of a nervous storm—indigestion, insomnia, neuralgia, a fit of the blues, or an hysterical outburst. Not recognizing their own weak condition, the trouble is referred to the immediate exciting cause, which in their own minds, and often in the mind of the physician, is thus brought into undeserved prominence. An example of this is shown in certain cases of epilepsy, where, as was very clearly shown by Herter and Smith,[1] the individual attacks often coincide with increased gastro-intestinal putrefaction and constipation. It can hardly be assumed that such intestinal disturbances are peculiar to epileptics, so that another factor must also be considered, and that is, of course, the defective brain of the epileptic which can be so easily disturbed by such processes.

Again, the study of hysteria shows us that it is not uncommon to find in the hysterical certain painful points. These points are often situated over the ovaries, to be sure; but they are also frequently found elsewhere: over certain vertebræ, in the epigastrium, beneath the breasts, under the clavicles, or somewhere in the head. We know that the tenderness is purely of psychical origin, that it may occur without any reference to

[1] New York Medical Journal, Aug. and Sept. 1892.

the condition of the organ which lies beneath the tender spot, or which may seem tender itself. Sometimes these tender spots are hysterogenous, and pressure on them may give rise to an hysterical attack. Sometimes the morbid psychical condition may directly affect certain remote organs, and we have hysterical aphonia, hysterical vomiting, or hysterical anuria. Careful study will show in such cases that the whole trouble is purely psychical, and that under hypnotic influences the organ can perform its functions normally. The characteristic of such patients is their profound suggestibility. Either by their own or by another's suggestion, some idea assumes a dominating place in their consciousness, or, perhaps unknown to them, in their subconsciousness, and the morbid psychical processes thus set in motion give rise to many very strange and remarkable symptoms. We know only too well how the "indiscreet youth" are led by the quacks to develop a long series of "imaginary" but none the less real and distressing sexual symptoms, which may be most difficult to cure. The sexual element plays a most important part in the psychical life of woman, which need not be dwelt upon here, so that the idea of "womb trouble" is fraught with every form of evil and disaster, and a woman finds plenty of evidence, not only from the "astringent smile" of her friend "for health," but from eminent medical authority, that all her vapors and megrims can be explained by this dreaded disorder. The suggestion of pelvic treatment may for a time relieve all these ills, and, in certain hysterical conditions, a tent, a tampon, an application, or a pessary may work wonders. The still more tremendous suggestion of a surgical operation can do still more, and an incision of the skin of the abdomen, or normal ovariotomy, may, for a time, work a startling cure.

Such cures, as I have said, are not always permanent, and here, as elsewhere, the argument *post hoc, ergo propter hoc* often leads to false conclusions. Many chronic affections, notably tabes and epilepsy, may do well for a time under any new form of treatment, and the whole history of the treatment of epilepsy is filled with the story of the abandonment of therapeutic measures which at first had warm advocates. Castration, trephining (in non-traumatic cases), ligature of the vertebrals, nitrate of silver, and zinc, in the treatment of epilepsy, are like the last year's snow. A young woman with a very neurotic history was referred to me some time ago by an oculist. He clearly recognized the neuropathic element in her trouble, but as she suffered greatly from headache, which had been much aggravated by using her eyes in the study of music, he thought it fair to test the ocular conditions. He found anisometropia, and glasses gave striking relief for a month; then the trouble returned, and again he examined the eyes and corrected the errors anew. This again gave relief for a time. So the story went on for two years. The actual condition of the eyes and their muscles did not seem constant, but

he worked with the utmost skill and patience to remove every element of eyestrain. Each attempt met with less and less success, until finally the girl fell back into her old condition.

In all these cases the trouble is something more than a misplaced womb or a diverted nasal septum, or half a dioptre of hypermetropia, or an exophoria. It is the bad brain beneath, the neuropathic state indicative of more or less degeneracy. That, however, is a truth which is not pleasant for the physician to tell or for the patient to hear. We know how eager the patient and his friends are to have some cause outside of himself assigned to his trouble. A fall in childhood, eyestrain, masturbation, the effects of some infectious disease—anything is better than to face the fact that the patient is degenerate, and that his trouble is due to the degeneracy of his ancestors. The doctrine of a reflex neurosis is much more popular—it is hard to own to a bad brain. "Daher man es viel besser ertragen kann, sein Missgeschick, als sein Ungeschick deutlich ins Auge zu fassen."

There is, however, a real condition which gives the hypothesis of reflex neurosis a certain support, and that is the condition of referred pain. It has long been known that disease in a certain part might give rise to pain in a somewhat distant part of the body, as when hip disease causes pain apparently in the knee. This can hardly be called a true reflex in every case, for it is often due to a mistaken interpretation of the sensations which reach the brain, just as when the man who has had his hand amputated still thinks that he feels his fingers. Dana,[1] some years ago, pointed out some of the more important relations of these referred pains. His researches have since been confirmed by Heads,[2] who has made an elaborate and exhaustive study of all the forms of referred pain and tenderness, and has done much to put our knowledge of the subject upon an accurate foundation. It seems probable, however, that this reference of pain and tenderness always follows a certain definite course, being governed by the anatomical relations of the parts. Thus, the referred pain of hip disease, already spoken of, is always ascribed to the knee, and never to the sacrum or pubes. Head has found that the referred pain and tenderness in disease of the stomach are ascribed to the skin area supplied by the sixth, seventh, eighth, and ninth dorsal segments, which also send motor fibres to the stomach. In diseases of many of the viscera there may also be referred pain and tenderness in certain areas of the head, these areas being probably in anatomical connection with the organs by means of the fifth nerve and its nucleus and the nucleus of the pneumogastric. It is obvious that if the local disease be cured by the appropriate treatment, the referred pain

[1] New York Medical Journal, July 23, 30, 1887.
[2] Brain, 1893-1894, xvi. 1; xvii. 339.

and tenderness will cease; and also that if the local disease be neglected, the referred pain and tenderness will continue; and that, secondarily, they may cause phenomena of exhaustion, with their consequent nervous symptoms. It is necessary, therefore, carefully to examine every individual case in order to determine if there be a local source for any referred pain; but it is probable, even in the light of our present knowledge, that, given the location of such pain, we can draw fairly accurate conclusions as to its source. Pain in the knee in a child, for instance, instantly suggests hip disease. Occipital pain may well suggest ovarian disease, while if occipital pain be absent and the pain be frontal, we may, according to Head's rules, infer that the ovaries are not responsible. In such cases, however, we have to do only with referred pain and tenderness, and not with any other nervous phenomena.

Granting that the hypothesis of reflex neuroses, as stated in the beginning of this paper, be sound, there are certain very remarkable peculiarities which remain to be explained. Why, for example, should disease of the ovary cause so much more nervous trouble, and so much oftener demand removal of the organ on account of the nervous trouble, than disease of the testicle, which has similar anatomical nervous relations? Why should an inflammation of the mucous membrane of the cervix uteri cause so much more nervous disturbance than a gleet? Why is the whole notion of reflex neuroses from uterine disease to-day decadent, while the doctrine of reflex neuroses from eyestrain is dominant? Why are the reflex neuroses from diseases of the nose coming into prominence, while the reflex neuroses from diseases of the larynx are seldom mentioned? Why do we so seldom hear of reflex nervous troubles from diseases of the joints? In all these cases there is equal reason to suppose an irritation of terminal sensory nerves, and in all these cases there is a communication between these nerves and other ganglionic or spinal nerves which can convey the irritation to a distant organ.

I have just spoken of the doctrine of reflex neuroses from eyestrain. As the subject, especially since the work of Stevens, has attracted much attention in this country, although comparatively little abroad, it may be well to consider it briefly.

Given a moderate error of refraction in the form of hypermetropia or astigmatism, or given insufficiency of some of the external muscles of the eye, it may be compensated by unusual effort of the muscles of accommodation or of the external muscle at fault. This unusual effort gives rise to the ordinary result of any unusual muscular effort—fatigue, a heavy feeling, and pain. Weir Mitchell long ago pointed out the influence of errors of refraction in causing headache, and cases of headache from this cause are met with daily by all of us. Like most neurologists, I have made it almost a routine practice to refer all patients with obstinate headache to an oculist, and often with satisfactory results. Un-

fortunately, however, even when an error of refraction or a muscular insufficiency is present, the treatment of the ocular condition does not inevitably lead to a cure, and I have more than once had to regret my rash promise of relief after I had urged a pretty woman to wear the obnoxious glasses. Cases such as I have just cited, where every form of ocular treatment gave only temporary benefit, have not been unique in my experience, and it has sometimes happened, even where there was astigmatism or hypermetropia, that ocular treatment did no good at all. A young woman of twenty-five years began to have severe pain in the vertex and right side of the head after an attack of pleurisy with effusion, for which she was tapped. The pain was dull and heavy, and she had a marked sense of pressure in the vertex, as if something were moving there and causing stagnation. She slept poorly and was nervous and despondent, and her memory was poor. The vision was blurred, and there was considerable sweating of the head. She consulted a neurologist, who at once referred her to an oculist, who found a slight astigmatism and gave her the proper glasses. Near work, however, had never brought on or exaggerated the pain, and the glasses did no good.

Such cases have led me to the belief that only when the pain was distinctly over the eyes, and was brought on or exaggerated by accommodation for near objects, and where there was no neurotic history, could a reasonable promise be given that glasses would relieve the headache. These headaches from errors of refraction, in other words, are nothing more than cases of referred pain. Head has defined the region of pain and tenderness more exactly as lying in the midorbital region, and he also adds that the pain comes on as soon as the patient wakes in the morning, and is relieved by complete paralysis of the accommodation by atropine.

In a few cases of blepharospasm and habit-spasm affecting the muscles about the eye a correction of errors of refraction has given marked relief; in other cases, however, such correction has been of no avail. In most cases where there has been relief, in my experiences, there has been a marked neurotic condition, and the trouble may have been of hysterical origin. It is possible, however, that with the extreme muscular effort at accommodation there may have been an overflow of nervous energy to the neighboring muscles.

Stevens, however, and various writers since, have urged that eye-strain from errors of refraction was of much importance in the production of epilepsy, chorea, and other nervous affections. For a year I referred every case of chorea to an oculist, who corrected all errors that required it. In a few cases the ocular treatment relieved the headache, but it had no perceptible effect on the chorea. I may add that I had no belief that treatment of the eyes would cure the chorea, but I referred them to the oculist at his request. To attribute a disease of

limited duration, occurring chiefly in neurotic children, and coming on most frequently in the spring, often attended with fever, endocarditis, and arthritis, and probably of infectious origin—to attribute such a disease as this to a permanent cause like eyestrain—seems absurd.

Epilepsy, much more than chorea, is one of the diseases which rests most distinctly upon a neurotic basis. It is, in fact, an indication of pretty profound degeneracy. The recent work of Chaslin, Van Gieson, and others indicates very strongly that it has a definite anatomical basis in processes of neuroglia-sclerosis in the brain-cortex. In spite of the benefit which is alleged by Dodd, Ranney, and others, to follow treatment of the ocular conditions, it is asking too much to suppose that the degeneracy or the cortical changes are the result of astigmatism or any form of phoria.

It is probable that these errors of refraction upon which so much stress has been laid are very common in healthy persons, so that, unless it can be proved that they are much more common in nervous patients, their importance in the causation of nervous troubles is diminished. Concerning the frequency of hypermetropia and astigmatism there seems to be much difference of opinion. Ohlemann[1] found only 9 per cent. of hypermetropia in 293 gymnasium students at Minden, while Roosa[2] claims that the normal eye is becoming hypermetropic, and, in one hundred persons without asthenopia he found[3] only five who were wholly free from astigmatism. Hypermetropia, especially in children, seems, according to most observers, to be very common. There is some reason for believing astigmatism is commoner in epileptics. Dodd,[4] who in fifty healthy persons found 70 per cent. of hypermetropia and 16 per cent. of astigmatism, found in one hundred epileptics only 42 per cent. of hypermetropia and 42 per cent. of astigmatism. Féré and Vignes[5] found astigmatism in 112 out of 142 epileptics.

Granting this fact, however, it by no means follows that the astigmatism has any etiological influence on epilepsy. In epilepsy, as in other forms of nervous disease of degenerate type, various stigmata of degeneracy—cranial asymmetry, malformations of the ear, torus palatinus, anomalies of the genitals, etc.—are common. Astigmatism may itself be such a stigma, and the fact that in epileptics Féré has found astigmatism most marked on the same side as other physical deformities is certainly suggestive.

There is a class of cases, however, where a reflex origin seems fairly probable—the cases of so-called reflex epilepsy. A critical examination of the cases reported under this head would certainly eliminate many of

[1] Archiv f. Augenheilk., January, 1893.
[2] American Ophthalmol. and Otol., Oct. 1892.
[3] New York Medical Record, Nov. 26, 1892.
[4] Brain, 1893, xvi.
[5] Féré: Les Épilepsies et les Épileptiques, p. 393.

them. A considerable number of them are undoubtedly cases of hysteria, and in others the dependence of the epilepsy upon the alleged source of irritation is certainly doubtful. Nevertheless the thesis that a remote irritation may give rise to convulsive seizures is supported by the well-known experiments of Brown-Séquard, producing epilepsy in the guinea-pig by injury of the sciatic, and by a limited number of authentic cases in man. In most of these cases the source of the epilepsy has been of traumatic origin, and on removal of the irritation the epilepsy has ceased. These cases, however, are distinctly rare. In the cases of epilepsy coming under my own observation, I think that less than 2 per cent. could be assigned to such a cause. One case is worth citing, although the patient was not long enough under observation for a complete report. A healthy Irishwoman, a multipara, had a difficult labor in which forceps were used. It was supposed that the forceps injured the sciatic nerve, as symptoms of lesion of the left sciatic soon developed. She came to the Boston City Hospital, where she remained for some weeks, suffering from sciatic pain, and slight anæsthesia, paresis, and degenerative reaction in the muscles in the region supplied by that nerve. After several months she returned, with some improvement in the sciatic symptoms, but complaining of loss of memory, mental dulness, general muscular weakness and slight tremor, and she reported several convulsive seizures. No special hysterical stigmata were found, but no opportunity occurred of seeing the attacks, and she failed to continue in attendance at the hospital.

In these cases it is possible that the constant irritation of the sensory nerves, associated, perhaps, with the shock of an injury, may finally result in a motor discharge, giving rise to a pure reflex epilepsy. Such cases, however, are rare, and further investigation is necessary.

The following conclusions seem justified:

1. The essential feature in the production of many neuroses is the neuropathic state—the degeneracy of the subject.

2. In hysterical subjects suggestion plays an important part both in the development and in the cure of the symptoms.

3. Disease of any organ may give rise to referred pain in some definite area, but not to other nervous disturbances, except as a secondary result of local disease of the organ. This local disease manifests itself by the ordinary local symptoms, and the nervous phenomena are due to exhaustion, anæmia, intoxications, etc.

4. In a few rare cases injury of a sensory nerve may give rise to epileptiform seizures.

5. Surgical operations for the relief of nervous symptoms should never be performed unless there are clear indications, apart from such symptoms, for an operation.

A REPORT OF FOURTEEN CASES OF DISLOCATION OF THE ULNAR NERVE AT THE ELBOW.[1]

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The following case of dislocation of the ulnar nerve at the elbow recently came under my observation, and I have thought it of sufficient interest to bring it to the notice of the members of this Association. I have also been able to find a report of thirteen additional cases of this injury, which I have reported briefly.

Case I.—John L., aged fifteen years, in March, 1894, while playing with another boy, was struck upon the inner aspect of the right elbow by the point of a stick of wood, about an inch in diameter and eighteen inches in length, which was thrown at him with some force. Upon the reception of the blow he felt a sharp pain at the seat of injury, and noticed a sense of tingling in the inner side of the forearm and in the little and ring-fingers; he described the sensation as that caused by the passage of a current of electricity. There was some swelling about the elbow-joint, which was treated by lotions for a short time, and a few days after the injury he presented himself at the Surgical Dispensary of the Methodist Hospital, complaining of pain and tingling in the forearm and fingers, and a certain amount of disability of the arm. He was seen at this time by Dr. Laffer, who, upon examination of the injured arm, discovered a cord in front of the inner condyle, pressure upon which caused, pain and tingling in the little and ring-fingers. Dr. Laffer considered the case one of dislocation of the ulnar nerve, and pushed the nerve back into its normal position, and placed a compress back of the internal condyle over the ulnar nerve, and held it in place by adhesive strips, and limited the motion of the elbow-joint by the application of a splint. The patient was referred to me a short time afterward, at which time he was still wearing the compress over the internal condyle of the humerus, but had discarded the splint. Upon examination of the arm at this time I noticed when the forearm was flexed I could distinctly feel a cord slip over the inner condyle and take a position in front of it; when the cord occupied this position he complained of a sense of numbness and tingling in the little and ring-fingers; when the forearm was extended the cord could be felt to slip backward and take its position behind the condyle; pressure upon the cord when replaced produced somewhat the same sensations in the fingers. The patient stated that the sensations produced by displacement of the cord, which was evidently the ulnar nerve, were much less marked than soon after the injury. It was also noticed that the ulnar nerve upon the injured side was more prominent in its groove behind the condyle than that of the opposite side. I saw the patient again two months later, and on examination it was found that the nerve still slipped forward when the forearm was flexed, but the patient stated

[1] Read before the American Surgical Association, New York, May 30, 1895.

that he had been able to resume his work, and it was only occasionally that there was any numbness or tingling following the displacement of the nerve. When the patient first came under my observation the question of cutting down upon the ulnar nerve and suturing it in its normal position was suggested; but as the discomfort was slight, and he was soon able to regain the use of his arm, his parents refused to have him submit to operative treatment.

From the gradual loss of sensations produced by the displacement of the nerve, and the increased usefulness of the arm, it would seem that the nerve had accustomed itself to its changed relations.

CASE II.—Dr. Lutz[1] reports a case of dislocation of the ulnar nerve in which there was no history of traumatism. The patient referred to by Dr. Lutz was a man of twenty-eight years of age, who was continuously employed in lifting a heavy bucket from a lower to a higher level, in doing which he often noticed that the little and ring-fingers of the left arm became suddenly numb and stiff, and that these symptoms disappeared when he rubbed his elbow against his body. Dr. Lutz upon examination of this case found a cord in front of the inner condyle of the humerus, which, when pushed back of the condyle, caused the disappearance of all of these symptoms. It was ascertained that the patient could easily reproduce the displacement of the ulnar nerve in making the motions of the arm which he employed in his customary work.

CASE III.—G. Andral[2] reports the case of a patient who was struck by a piece of wood upon the inner side of the right elbow, which became discolored, swollen, and painful; there were loss of sensation in the ulnar distribution of the forearm and hand, and inability to extend the fifth finger. The arm was placed at rest by the application of a plaster-of-Paris bandage, which was retained for twenty-eight days. Three months after the injury it was found that the ulnar nerve glided forward from the groove in which it rested when the arm was flexed, and took a position over the prominence of the internal condyle, but returned to its normal position when the arm was extended. There were wasting and sensory and motor changes also present. Andral excised two to three centimetres of the nerve, and the two ends were drawn together and sutured, and the arm was fixed in the extended position. The operation was unsuccessful as regards securing the nerve in its normal position, but the function of the nerve was restored.

CASE IV.—A. Blattman,[3] of Zurich, reports the case of a man who, while swinging violently to and fro on a bar, felt something snap at his elbow, which was followed by pain from the elbow to the fingers. Two months after the accident he still suffered from pain, and it was found that the ulnar nerve had been dislocated.

CASE V.—Annequin[4] reports the case of a soldier who fell from a parallel bar and struck on his forearm in the antero-internal part of his elbow. Paresis of sensation and motion followed, the ulnar nerve was found dislocated, and was replaced and held in position by a pad placed over the inner condyle, and the arm was immobilized with a plaster-of-Paris cast. In twenty days sensation and motion had returned almost entirely. At the end of twenty-seven days the cast was removed, and when the arm was rapidly flexed the nerve slipped out of place. The nerve was then exposed by incision, two flaps of the fasciæ were formed, and the nerve was sutured in its groove. The cure in this case was definite.

CASE VI.—Prof. Poncet,[5] of Lyon, reports the case of a boy, fifteen years of age, who sustained an injury in throwing a snowball, who, every time his arm was flexed, had the ulnar nerve slip out of its sulcus and take a position

[1] St. Louis Medical and Surgical Journal, 1880, p. 550.
[2] Inaugural Dissertation, G. Andral, 1889, Griefswald. [3] Ibid.
[4] Archives de Médecine et de Pharmacie Militaire, 1890, vol. v. p. 452.
[5] Semaine Méd., 1880, vol. i. p. 93.

internal to the internal condyle of the humerus. In this case Poncet exposed the nerve, and having made two fibrous flaps from the walls of the sulcus between the olecranon and the internal condyle of the humerus, enclosed the ulnar nerve by suturing the edges of the flaps. The patient was seen many months later and the dislocation had not returned.

CASE VII.—E. Zuckerkandl[1] describes a case of dislocation of the ulnar nerve in which every time the right elbow was flexed the ulnar nerve slipped from its sulcus to the flexor side of the condyle, and returned again to its normal position when the arm was extended. No cause was known in this case.

CASE VIII.—Schilling[2] reports the case of a male, aged seventy years, who complained since his youth of occasional pain in the distribution of the ulnar nerve, strength of fourth and fifth fingers deficient, moderate wasting in the district supplied by the ulnar nerve, most marked in the interossei muscles, motility and sensibility unaffected, no history of injury in this case; the ulnar nerve could be felt upon the top of the internal condyle, and slipped backward into its groove behind the condyle when the area was extended. No treatment was instituted in this case.

CASE IX.—Sir William MacCormick[3] reports the case of C. McG., aged thirty years, who noticed gradual loss of power in the right forearm. Five months before he came under observation he noticed something slip forward on the inner side of the right elbow. On examination it was found that the ulnar nerve on the right side slipped in front of the condyle as soon as flexion of the forearm took place; this produced no pain, but a feeling of uselessness in the forearm, and inability to hold anything in the fingers for any considerable time. MacCormick exposed the nerve, and having made a bed for the nerve, by dividing the fibrous structure behind the inner condyle, he fixed it in its usual position by means of two kangaroo-tendon loops passed through the inner margin of the triceps tendon and somewhat loosely around the nerve; several sutures were also used to unite the divided margin to the fascial expansion of the triceps superficial and the nerve, which were then firmly supported; the arm was put up in the extended position in a plaster-of-Paris splint. The patient left the hospital with the nerve in its normal position and the function of the nerve entirely restored.

CASE X.—Mr. Croft[4] reports the case of E. M., aged twenty-eight years, who fell, striking her right elbow against the edge of a bucket; the injury was followed by cellulitis confined to the region of the right elbow. She was admitted to the St. Thomas Hospital twelve days after the injury. An abscess was opened above the elbow, and she left the hospital well at the end of a week. She was readmitted to the hospital later, and on examination it was found that when the forearm was flexed to a right-angle the ulnar nerve slipped forward from its position behind the condyle, and the patient experienced pain in its distribution. Mr. Croft exposed the nerve, which was slightly thickened and freely movable over the inner condyle of the humerus; he then stitched the sheath of the nerve to the inner margin of the triceps tendon, and finally attached the edge of the same to the periosteum covering the inner condyle, leaving the nerve completely imbedded. The wound was closed and the arm was fixed in a plaster-of-Paris splint in the extended position. Sensation was almost absent from the fourth and fifth fingers, but gradually returned. The patient left the hospital with the nerve in position.

CASE XI.—G. H. R. Holden[5] reports the case of a double dislocation of the ulnar nerves at the elbow. The patient was a mate upon a schooner, who was at the wheel during a storm, and who was compelled to use all of his strength to keep the vessel on her course; during a squall he suddenly felt something give way in both of his elbows, and since that time (two years ago) he has been conscious of pain and tingling along the course of the

[1] Medizinische Jahrbucher, Wien, 1880, p. 135.
[2] Munchner medicinische Wochenschrift, 1892, p. 679.
[3] London Lancet, 1891, p. 1041.
[4] London Lancet, 1891, p. 1040.
[5] British Med. Journal, 1893, vol. i. p. 288.

distribution of the ulnar nerves. Examination showed both ulnar nerves were dislocated forward, but as the patient did not experience much discomfort no operative treatment was recommended.

CASE XII.—W. F. Tronson[1] reports the case of a man who fell upon his left elbow several years before. Upon examination he found that the ulnar nerve, instead of being behind the inner condyle, occupied a position over its prominence, and the slightest pressure upon it caused tingling in the fingers supplied by this nerve. No treatment was employed in this case.

CASE XIII.—H. W. Cunningham[2] reports the case of Mrs. G., who, a year before she was seen by Mr. Cunningham, stumbled in going downstairs and struck her elbow forcibly against the wall, since which time pressure brought to bear over the inner condyle of the humerus gave rise to pain and tingling along the inner side of the forearm and little and ring fingers. Examination showed that the ulnar nerve was displaced forward on the most prominent part of the condyle, and pressure upon it produced pain in the forearm and fingers corresponding to the distribution of this nerve. No treatment was employed.

CASE XIV.—G. Monroe Smith[3] reports the case of C. S., who slipped while running around the corner and fell violently upon his elbow. The arm was painful and swollen for a few days, and when seen at this time the ulnar nerve could be felt as a cord over the internal condyle of the humerus. It could be easily reduced by extension of the forearm and manipulation, and an attempt was made to keep it in place by extension and by strapping. This treatment failing, an incision was made over the nerve, and it was exposed, and fastened in its place by sutures, which stretched across it from the neighboring fasciæ over the triceps muscle, a little above the inner condyle. An angular splint was worn for a couple of weeks, and the nerve has since remained in position.

Dislocation of the ulnar nerve at the elbow is a comparatively rare affection, occurring independently of fractures or dislocations of the bones of the elbow, and may result from direct violence, or from muscular effort or violent flexion of the arm at the elbow, causing laceration of the fascia which holds the nerve in its groove at the back of the inner condyle of the humerus. Zuckerkandl, in an examination of two cases of dislocation of the ulnar nerve in dead subjects, noted that the internal condyle of the humerus in each of these cases was small, and the groove for the nerve shallow, and the fascia binding down the nerve was poorly developed; an unusual forward position of the internal lateral ligament was also noted. Annequin considers that rupture of some of the fibres of the internal lateral ligament is the determining cause of dislocation of the ulnar nerve at the elbow. The symptoms resulting from this injury—pain, tingling in the parts supplied by the ulnar nerve, and a certain amount of disability of the elbow—are usually more marked immediately after the injury, but the symptoms usually become less marked in a short time, in many cases very little permanent disability seems to follow, the nerve accustoming itself to its new position. Very rarely a neuritis is developed. In view of the possibility of the development of a neuritis, it seems wise to replace the dislocated

[1] British Med. Journal, 1893, vol. i. p. 288.
[2] Ibid. 1893, vol. i. p. 116.
[3] Ibid. 1893, vol. i. p. 188.

nerve and fix it in its normal position as soon as possible after the injury. To accomplish this, various plans have been suggested and practised: first, fixation of the elbow by means of a splint or plaster-of-Paris bandage, with the forearm extended, will keep the nerve in place, but can only be employed for a limited time. The application of a compress over the back of the internal condyle has also been employed, in addition to the fixation by the splint. The use of a splint to fix the arm at the elbow, and a compress over the nerve, have not been satisfactory, as the dislocation has generally returned after its removal when the function of the elbow-joint is restored, but this method should be employed in any case, and should be given a fair trial, where the patient refuses a more radical form of treatment. The most satisfactory method of securing the nerve seems to be that practised by Mr. MacCormick, who exposed the ulnar nerve, and having made a bed for the nerve by dividing the fibrous structures behind the inner condyle of the humerus, fixed it in its usual position by two kangaroo-tendon loops passed through the inner margin of the triceps tendon and somewhat loosely around the nerve; several sutures were also used to unite the divided margin of the fascial expansion of the triceps tendon superficial and the nerve. In Mr. Croft's case the sheath of the nerve was sutured to the inner margin of the triceps tendon, and he finally attached the edges of the same to the periosteum covering the internal condyle of the humerus, leaving the nerve completely imbedded. Annequin and Poncet exposed the nerve, and having made two fibrous flaps from the walls of the sulcus between the olecranon and internal condyle of the humerus, enclosed the nerve by suturing the edges of the flaps; the result was satisfactory. Annequin also performed a similar operation in a second case with success, and suggested the union of the edge of the external flap to the triceps tendon. Andral, in the case of dislocation of the ulnar nerve at the elbow which was accompanied with neuritis, resected two to three centimetres of the ulnar nerve and sutured the ends; the result in this case, as regards securing the nerve in its normal position, was not satisfactory. In Zuckerkandl's case sutures were employed with success.

As far as I can discover, in all cases where the nerve was exposed and sutured in its normal position the result was satisfactory, and the dislocation did not recur, and in no case is it recorded that neuritis developed in the nerve as a result of operative treatment.

TUMOR OF THE AQUEDUCT OF SYLVIUS.[1]

By Joseph Collins, M.D.,
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The aqueduct of Sylvius is perhaps the rarest location for tumor within the cranial cavity. The symptoms produced by a growth in such a location are, therefore, not so well known as those produced by tumor of other parts of the brain. This is my excuse for asking your attention to a few details of the following case, which was carefully observed for several weeks prior to the patient's death.

J. F., single, aged eighteen years, a plumber's assistant, was admitted to the Hospital for Nervous Diseases October 6, 1894. When first admitted he stated that his illness dated from a fall, striking the head, which he had got about six months before. He afterward confessed that this was not entirely true, and that he had not been well for two years past. There was nothing in his family history or in his childhood to call for special attention. He had been a strong baby and a vigorous boy. In school he was not considered stupid, nor did he suffer from headache. Two years ago he began to have dull, sleepy feelings, which his people attributed to laziness, so he was obliged to continue at his work. He took no interest in it, consequently made no progress, and it was with difficulty that he was able to keep his employment, although he did so until four months before coming to the hospital. During these two years he had attacks of dizziness, some headache, and occasionally weak spells, but never had he lost consciousness. He stopped working because he was not considered safe after he received the fall. The feeling of dulness, vertigo, and attacks of weakness continued, the headaches became more severe, and he was taken to a physician, who treated him for epilepsy by giving large doses of bromides. He continued to grow worse under treatment, and in July he lost control of the bladder and became uncertain and somewhat staggering in gait. About this time he had a severe epistaxis, which came on without attributable cause, and was checked only after prolonged treatment. This is all that could be learned from the patient, and to it the family could add nothing. They were positive that there is no specific or tubercular history in the family. All the other children, six in number, are healthy.

Examination October 7, 1894. The patient is a large, dull, overgrown-looking individual, with a large head and expressionless face, the latter thickly covered with acne, the result of the bromides. Two years ago he wore a 6¾ hat, now he requires 7½. If left undisturbed, he sits in one position the greater part of the time, and likes to rest his head upon the wall or the bed. He has very little interest in his surroundings, and few wishes. He understands perfectly everything that is said to him, and answers intelligently but slowly. After a question a number of seconds elapse before he begins to answer, and often while answering a peculiar involuntary "foolish" smile comes over his countenance.

[1] Read before the New York Neurological Society, January 8, 1895.

Memory is fairly good. He is deficient in mental power and apprehension, and continuous mental exertion is beyond him. When he attempts to walk he staggers, reels, then plunges, but saves himself before falling. His gait is the characteristic inco-ordination of one very drunk. At the first examination this staggering seemed to be mostly, if not entirely, toward the left. On the following days, however, he staggered equally toward the right and left. Station sways considerably. Patellar reflexes normal, lively. Sensation unimpaired, but not very acute. Vision good, 20-20ths. Pupils react to light and accommodation.

Ophthalmoscope shows choked disks, but not very marked. No ocular paresis or paralysis. Hearing good. No defect of smell or speech. Circulation sluggish, hands and feet cold and blue; he says he cannot get thoroughly warm. Temperature continually slightly subnormal. Complains of spells of severe headache, which pass off after lasting a variable length of time, from a few minutes to a half hour, and leave a dull, constant pain all through the head. He has never had anything resembling a spasm or convulsion. Frequently passes urine in bed or in his clothing, and this seems due not so much to a paralysis of the sphincter, but to the fact that he takes no interest in responding to these calls. Has no attacks of nausea or vomiting, nor has he had previously. No loss of flesh, and he says he feels quite as strong as ever. There is no difficulty in swallowing, and no deafness.

Nine days later it is noted that the boy's mental condition and gait vary very much. Some days he is quite bright and gets about fairly well; on other days he is stupid and can hardly hold himself erect. He seems to have lost complete control of the bladder. The gait has become more uncertain and reeling. His knees bend beneath him, and his efforts remind one forcibly of an intoxicated person. No change in the condition of the optic nerve; vision remains acute.

October 23*d*. The patient is more stupid and answers with less alacrity; does not complain of soreness in the head or headache; sleeps a great deal, or at least is in a stuporous condition, from which, however, he is easily aroused, but after being aroused quickly relapses if left alone. Temperature almost continually two degrees below normal. Reflexes present but very sluggish, no disturbance of sensation.

October 29*th*. During past few days patient has been getting more stupid and more difficult to arouse. Several times he has fallen while attempting to get from his chair to the bed. November 1st patient was put to bed at seven o'clock, and the next morning he was found dead.

The notes of the autopsy, eight hours afterward, are as follows:

Body extremely well nourished and well developed. No traces of struggle before death, or other indications that death had not been easy. Measurements of head were as follows: Circumferences: Occipito-mental, 25¾; occipito-frontal, 25⅛. Diameters: Bifrontal (frontal eminences), 4¾; bitemporal (temporal ridges), 6¼; bioccipital (occipital eminence), 6¼; bimastoid (mastoid foramen), 7. Distance from mastoid process of one side to mastoid process of the other across top of skull, 13¼ inches.

The head gave one the impression of being large and especially prominent over the temporal bosses. The external surface of the skull showed no sign of disease or injury. While being sawn through the skull-cap was noticed to be extremely thin. After its removal it was seen to be from one and one-half to two and one-half millimetres in

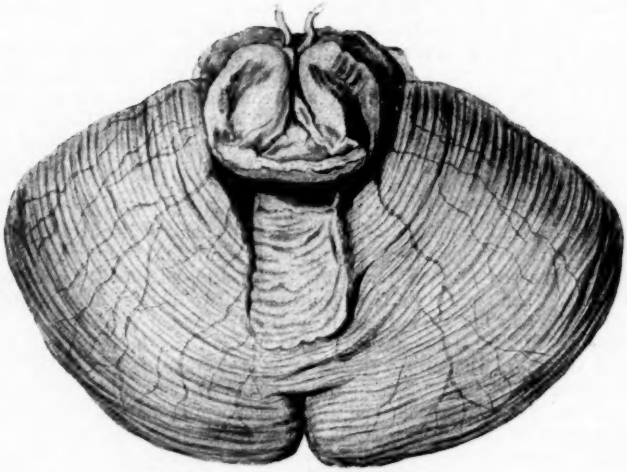
thickness, thinner on the right side than on the left. The Pacchionian impressions were very deep, especially those situated near the vertex. The dura was normally adherent and showed no traces of inflammatory deposit. The cerebral veins were moderately full. The brain, when the skull-cap was taken off, gave a fluctuating impression to the finger, and in removing it from the basis cranii, when the tentorium cerebelli was cut the third ventricle was accidentally opened, and a considerable quantity of clear colored fluid escaped, probably about eight to ten ounces. After its escape the cerebral hemispheres became sunken and lost their fluctuating impression to the touch.

Weight of the brain without fluid 1474 grammes.

There were no evidences of meningitis, no inflammatory deposits in the pia or the arachnoid, no atheroma or tortuosity of the bloodvessels. The posterior interpeduncular space appeared softened. There is a free opening into the third ventricle, and the middle finger can be carried with ease into the anterior and inferior horns of the lateral ventricles, which are greatly distended. The fourth ventricle contains no fluid.

FIG. 1.

Tumor.



Showing location and size of tumor.

On cutting off the cerebellum, medulla, pons, and cerebral peduncles there is found a grayish translucent mass filling the aqueduct of Sylvius and projecting backward like a tongue. Its location and size are very well shown in Fig. 1, which represents the actual appearance. Anteriorly it reaches forward as far as the splenium of the corpus callosum and posterior commissure.

The walls of the third ventricle are nearly destroyed, so that the third ventricles and the lateral ventricles practically form the same cavity. The walls of the latter ventricle are smooth and show no granulations or inflammation. The ependyma is clear and translucent, and

is free from granulations and roughness. The choroid plexus and velum interpositum are free from cysts or unusual adhesions. The general

FIG. 2.

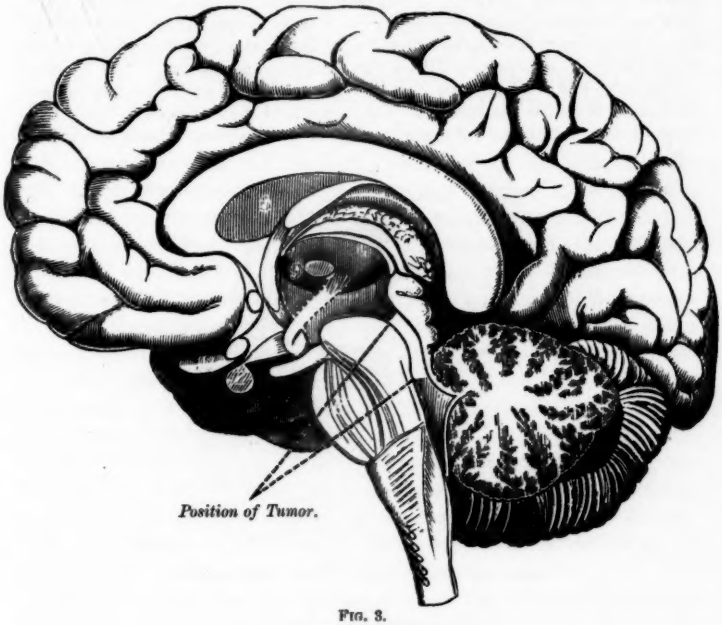
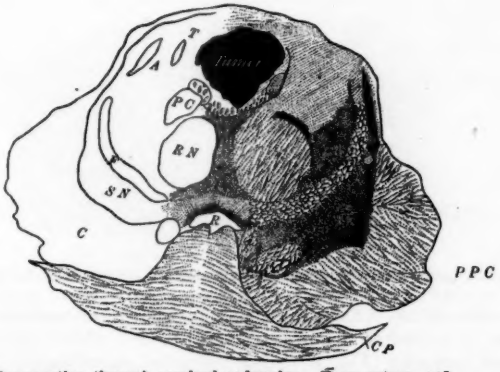


FIG. 3.



Cross-section through cerebral peduncles. From nature. ×2.

T. Trigeminus descending root. *A.* Fillet from ant. corp. quad. *P C.* Posterior commissure. *F.* Fillet. *R N.* Red nucleus. *S N.* Substantia nigra. *R.* Raphe. *P P C.* Pes pedunculis cerebri. *C P.* Crus pontis.

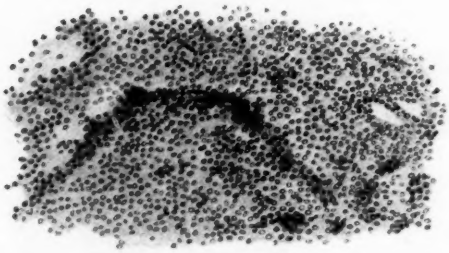
autopsy showed congested, slightly œdematous lungs. Heart normal, pericardium and pleura normal. Liver and kidneys normal in size and consistency. Left side an undescended testicle, old infantile hernia.

The brain was hardened in alcohol. When sections of the mid-brain and pons were made, preparatory to putting them on the blocks, it was seen that the tumor extended downward almost to the upper termination of the fourth ventricle. Below the point where it ended the aqueduct and ventricle were distended to twice or three times their natural size. Anteriorly the tumor extended to the posterior termination of the third ventricle, completely filling the distended aqueduct. The location of the tumor is well seen in Fig. 2. Figs. 3 and 4 show the appearance on section through the cerebral peduncles and pons respectively. Cultures of the tumor for tubercle bacilli were negative. Some specimens,

FIG. 4.

Cross-sections of pons, showing tumor in the aqueduct.

FIG. 5.



Microscopical appearance of a section through the middle of the tumor.

which were stained with carmine, while others after soaking in a strong solution of potassium bichromate and stained with hæmatoxylin, are exhibited herewith (Fig. 5). Microscopical examination of the tumor shows it to be in all probability a sarcoma of the round-cell type. At first it was thought to be tuberculous by Dr. Brooks, the pathologist at the New York Post-Graduate Hospital, and his assistant, Dr. Schmitt, who were kind enough to examine the specimens for me; but the vascularity of the sections, the small amount of coagulation-necrosis, and

the uniformity of the round cells speak against this view. The tumor seems to have had its origin from the lining of the ventricle, and the strictness with which it confined itself to that cavity and the entire absence of any infiltration without its walls were most striking. This lack of infiltration accounted for the absence of nuclear symptoms, for if the slightest infiltration had occurred it would have manifested itself in the parts supplied by the oculomotor and patheticus nerves. Sections stained with hæmatoxylin failed to reveal any tracks of degeneration.

When we glance at the symptoms presented by this patient in the light of the post-mortem findings we see that marked inco-ordination, manifested by the reeling, staggering gait, was the result of the distention of the aqueduct. As has previously been stated, the gait was typical for what has been described as cerebellar gait. It cannot be too strongly emphasized that such a gait can result quite as well from tumor involving the corpora quadrigemina. When the lesion is in the latter region oculomotor paralysis will be always associated with inco-ordination, and if the posterior corpora quadrigemina is involved some defect of hearing up to complete deafness will be a symptom. Bechterew has shown that in animals lesion in the vicinity of the third ventricle and in the region of the inferior olive causes disturbances of motility entirely analogous to those resulting from injury to the semicircular canals and cerebellum, and that likewise lesions of certain portions of the tegmentum and the posterior cerebellar peduncles as well as section of the acusticus will result in very similar disturbances.

The subnormal temperature and circulatory sluggishness were the result of distention of the fourth ventricle, inhibiting in a degree the functions of the important centres situated along the floor of that cavity. The headache, hebetude, slow mentality, were all dependent upon the intraventricular accumulation, the result of the complete plugging of the aqueduct.

CHOICE OF METHODS IN PERFORMING HYSTERECTOMY.

By Fernand Henrotin, M.D.,

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The earnest debate which the discussion of this question occasioned at the recent meeting of the American Gynecological Society in Baltimore is an indication of the importance of the subject, so that no apology is necessary in presenting it. However much prominent men differed in their views on that occasion, the method of choice seems to

the writer so plainly indicated in the large majority of cases that a serious consideration of the apparently irreconcilable opinions is certain to be interesting. To elucidate properly the matter under discussion, we will consider separately hysterectomy as performed for septic conditions or for fibroid tumors. The removal of the uterus both through the abdomen and through the vagina for malignant disease, and for prolapse, is now an ancient procedure; but deliberate hysterectomy for inflammatory pelvic condition is an operation of relatively recent date. In 1886, Péan, of Paris, made his first vaginal hysterectomy on February 16th, following it up with three more uterine castrations during the same year. During the next two or three years he repeated the operation many times, and made his first report on the subject to the Academy of Medicine in July, 1890. In that communication he recommended dilatation and curettement, when the uterine mucosa alone was affected; when suppuration had invaded the adnexæ and the pelvic peritoneum he resorted, in mild cases, to simple vaginal incision; but in severe cases he advised total ablation of the uterus, and, if possible, the appendages. The most notable contribution to this subject was the masterly report of Paul Segond before the International Gynecological Congress at Brussels, in September, 1892. About this time the inefficiency of the prevailing methods of simply removing the tubes and ovaries in serious septic cases began to be recognized in America, and such men as Krug, Polk, Baldy, Prior, Baer, Eastman, and others began to remove the uterus in serious cases, but always through the abdomen.

Though I personally performed the operation in 1891, publishing my views a few months later, it is only within the last two years that the vaginal method has been used to any extent, mostly by Polk and Boldt, of New York. The success they have obtained, coupled with the publication of the later statistics of European operators, and the recent visit of Jacobs, of Brussels, who practically demonstrated his method of operating, are certain to give a great impetus to this variety of work. Already within the last year the number of men who are doing vaginal hysterectomy for pelvic septic diseases has increased tenfold, and their results have been all that could be desired, though still there are a number of operators who condemn their work. The most determined opponents of vaginal operation are gentlemen who have become skilled and experienced in the abdominal way, and who have seldom, if ever, operated from below in this variety of disease. The same cannot be said of the others, for although it is conceded that a skilful, courageous, and experienced surgeon can perform hysterectomy on all, or nearly all, abdominally, the most enthusiastic operator by the vagina willingly acknowledges his inability to eradicate many forms of disease by his favorite method. Having performed these operations a goodly number of times myself, I have endeavored to gain a proper idea of the value of each

individual variety of procedure by visiting and seeing at their work different individuals who can rightly claim the privilege of being known as experts. I have seen Péan, Segond, and Jacobs operate, the latter many times by the vaginal route. In this country I have repeatedly witnessed the operations of Kelly, Baldy, Baer, Krug, Eastman, Etheridge, and many others, whose reputation and ability are proved in abdominal work. Besides this, I have been present at vaginal hysterectomies by Polk and Boldt. With the most sincere desire to be absolutely unbiased, it has become very clear to me that, though no one operation will prove most available for all cases, vaginal hysterectomy has a large and useful field in which the most satisfactory results will be obtained. Concerning statistics of mortality but little need be said, the improvement in the technique of the vaginal advocates having reduced the death-rate, as shown in their later work, to about the same as the most successful abdominal operators. Generally speaking, it must be acknowledged that if a patient can be operated upon as thoroughly, as perfectly, and as safely from below as above, the preference will lie with the former. Not to open the abdomen, not to leave an abdominal scar means much to most women, no matter what may be said to the contrary. A patient who has not had her abdomen opened, who has no scar left that she can see, will have been less profoundly shocked, will be conscious of less traumatism, will feel easier and quieter, and will in most instances be more quietly, completely, and perfectly cured. This is the observation of men who have performed large series of vaginal hysterectomies, and who at the same time frequently perform abdominal sections. Naturally, those pathological conditions that develop lowest down in the pelvis are more clearly within the province of the vaginal operator. Large masses rising high up in the abdomen, such as ovarian abscesses, and exudative tumors rising to and above the umbilicus, are removed with more difficulty and less thoroughness by the vagina. Much depends in these cases upon the skill of the operator; for in this variety of cases the operation is frequently very difficult. On theoretical grounds, the opening into and drainage through the vagina are to be deplored on account of the difficulty of proper and thorough disinfection; but practically it cannot be denied that where drainage has been established by this channel there is little tendency for the infection to travel upward into the general peritoneal cavity, even in the most acute cases. The few cases of sepsis that occurred while the operation was still in its experimental stage have almost entirely disappeared, since the value of careful packing of gauze in the pelvis beyond the ends of the forceps has been recognized. The seat of the operation is thereby almost entirely shut off from the general cavity, the stumps of the broad ligament and the instruments being really in the vagina. That very rarely a bowel may be injured, or still more rarely the bladder

or ureters perforated, cannot be denied; but these accidents become more than exceptionally rare in the hands of the man who has become skilled in this class of work. An objection to vaginal hysterectomy has been stated to be the liability of leaving behind portions of infected tissue which could not be reached. Time and time again, however, have skilful surgeons been unable to remove all infected tissue in working through an abdominal incision. Even the most successful and experienced operators naturally hesitate before opening the peritoneal cavity in the presence of a large accumulation of pus in virulent septic cases accompanied by an acute febrile condition. We do not mean the closed pus-tube or the enucleable pus-sac containing a pus which has apparently but slight, if any, septic properties; we refer more particularly to the new accumulation resulting from the rupture of one of these innocent pockets which by reason of rupture and close contact with the intestine has become newly infected, this time with the streptococcus pyogenes or bacillus coli. The boldest and most radical operators are satisfied to let out its virulent contents by means of an opening in the lower abdomen or through the vaginal wall, and to await a more opportune time for a radical procedure. I will not quote from the literature upon this subject. As the surgeon operating for appendicitis is, perforce, content with evacuating the pus from a large abscess and draining, without endeavoring to remove the offending organ from its conglomerate and entangled mass, because of the risk of infecting the remainder of the peritoneal cavity, so must we in a certain limited number of cases stop short of removing the tube imbedded in a mass of uterus, omentum, intestine, and exudate. This means a long and severe illness to the patient, who by incision has had the abscess emptied, but who is not thereby cured of her disease. Even if the tubes and ovaries are removed, we frequently leave the woman with uncured sinuses discharging either through the abdominal wall or the vault of the vagina.

We must speak in stronger terms of a still more dangerous class of cases, with openings into the rectum or bladder, discharging the most foul pus through these organs at irregular intervals. The danger of abdominal operations in these cases need not be dwelt upon. It is in such cases that the French have insisted upon the propriety of removing the uterus, and if possible, the appendages, through the vagina. The operation is not easily performed, and its seeming difficulties have undoubtedly proved a great factor in preventing its adoption. Many operators have objected to it on account of the great trouble or impossibility of removing all of the diseased parts under the sight of the eye. In this regard it must be remembered that the removal of the uterus, and usually the appendages, which occupy the very centre of the diseased pelvis, affords a straight, large, and efficient channel for drainage which in almost every instance, sooner or later, completes the cure. When, as

will soon happen, operators succeed repeatedly in curing cases in which laparotomy had utterly failed, their opponents will be compelled either to inquire into the merits of the new procedure or see their patients drift into the hands of these men. Some of those who most bitterly opposed the operation now freely admit that it has a place among the recognized surgical procedures. The greatest obstacle in the way of this method is undoubtedly the question of diagnosis. The laparotomist who opens the abdomen sees and palpates the diseased tubes, measures the amount of destruction, recognizes by sight and by touch the condition of the uterus, can readily pass an opinion as to the propriety of the removal of the organ; but there is a certain proportion of cases in which, before the first incision into the abdomen is made, we are absolutely positive on account of the history of the case, the symptoms, and the result of local examination, that a radical operation must be performed, and in such cases the vaginal method offers many advantages. Pozzi, who at first positively condemned this method, has published his ideas upon the indications for the operation, which he has practised with success. In the last edition of his work he states that "In certain well-determined cases of diffuse pelvic suppuration vaginal hysterectomy is sometimes superior to intervention by the abdomen." Bouilly states that "Vaginal hysterectomy has great chances of becoming the unique method in bilateral annexial incurable disease when the indications are perfect. In difficult suppuration it is the method of choice. In simple cases it is neither more grave nor more difficult than laparotomy." The operation may not be ideal in its performance. We do not make clean cuts and apply clean ligatures in a fairly clean cavity under the sight of the eye, but we see in most cases decidedly more than they who try to underrate this class of work would have it believed. A large amount of the work is done directly under the observation of the operator. The adhesions to the exudate or the intestine can almost always be loosened in plain sight. The uterine tissue can easily be recognized, and injury to the adjacent structures avoided. The superiority of this procedure in selected cases will not fail to become evident in the near future. A place is claimed for this among the recognized operations with those who appreciate the propriety of hysterectomy at all, for the following reasons:

1. In the variety of cases to which it is particularly applicable it is less dangerous than laparotomy.

2. It avoids to a great degree the contamination of the general abdominal cavity by a less disturbance of the exudate, and consequently protects the unaffected portion.

3. It produces less shock, and is therefore applicable to patients much debilitated by the existing disease.

4. It does away entirely with the abdominal scar, and therefore with the liability to hernial protrusion.

5. In common with hysterectomy by other methods, it results in a more certain, rapid, and complete cure than mere removal of the appendages.

6. It is decidedly preferable, and less dangerous in cases complicated with fecal, urinary, and vaginal fistulous tracts.

7. It has proved successful in many cases in which laparotomy in the hands of the most skilful operators has failed.

VAGINAL HYSTERECTOMY IS CONTRAINDICATED IN THE FOLLOWING VARIETY OF CASES: If a woman has unilateral disease non-suppurative in character, I believe it best to enter the abdomen by a short incision, remove the diseased organs on the ailing side, or perform a conservative operation if possible. My reason for advocating the abdominal incision in such cases is that, after witnessing and performing a number of such procedures, I am convinced that the parts can be inspected and repaired more perfectly and with less violence to the tissues than when brought out and handled and returned through the vaginal cut. In plainly marked suppurative cases, however, even though only one side is apparently affected, I would still choose the vaginal route, unless it were a very mobile, perfectly outlined sac-wall separated from the uterus. Such cases, when operated upon, frequently need drainage, and when drainage is supposed to be necessary it had better be managed through the vagina. I have started to do vaginal hysterectomy, opened a pelvic abscess, removed a diseased tube, and ovary through the vagina, stopped the operation at that point, drained with gauze, and have seen that patient delivered of a healthy full-term child within two years. This, in answer to those who say that beginning hysterectomy means the abandonment of conservative measures. In doubtful cases it is perfectly feasible to open the posterior cul-de-sac, introduce the fingers and explore the pelvic cavity, ascertaining the condition of both tubes and ovaries, finishing up with a complete hysterectomy if both sides are found diseased beyond redemption. The age of the patient, the character of her symptoms, the chronicity of her ailment, and her general condition will frequently indicate which of these procedures is most desirable. For example, in a woman of advanced age, not particularly desirous of children, with a constitution more or less broken down by chronic pelvic disease, a vaginal incision, exploration, and probable complete hysterectomy would be indicated.

In some patients with chronic disease and large masses reaching to or above the umbilicus, the abdominal incision is frequently to be preferred if the mass feels very consistent and the patient is not too low. My reason for advocating abdominal incision in such cases is based upon the fact that probably we have here a large thick-walled abdominal or

ovarian abscess which it would be very difficult to excise completely through the vagina; but in women very septic and very low I would still operate vaginally, removing the uterus if possible, even were I obliged to leave a large portion of the appendages.

In some women, where there is strong reason to believe that appendicitis exists, I would again operate abdominally, expecting to remove the diseased appendix at the same time. The same rule would apply when other abdominal disease, such as obstruction of the bowels, floating or movable kidney, is strongly suspected. There is another variety of cases, usually puerperal in character, of which I have seen two instances, one operated by myself abdominally, the other by Dr. Jacobs vaginally, in which I would choose the abdominal method. It is a form of gangrene of the uterus, in which the consistency of the uterine tissue is so destroyed that neither clamps nor ligatures are able to control the hemorrhage, tissues, and vessels cutting through on the least violence. These cases can be diagnosticated usually by their puerperal origin, by the severity of the septic symptoms, and by the extreme friability of the cervical tissue, coupled with an enlargement of the uterus and a profusion of exudate surrounding the tubes and ovaries.

To conclude, then, this part of our subject we can say that both abdominal and vaginal hysterectomy have their field in the surgery of the septic diseases of women; that he who would aspire to do the most perfect work in the alleviation and cure of these diseases must perfect himself in the performance of both varieties of work; that a certain proportion of cases can be relieved infinitely better by one method than by the other, though many patients in whom the indications do not plainly point to one variety of procedure, to the exclusion of the other, had better be treated in the manner most familiar to the operator; that the choice of the method of operating will always demand a careful investigation into the history, symptoms, and local condition; and that he will attain the greatest success who cultivates the most careful discrimination, guided by skill, experience, and judgment.

Concerning the method of choice relating to the performance of hysterectomy for fibroid diseases of the uterus, it can be stated in general terms that many of the considerations that have been advanced regarding septic diseases hold good to the same degree. Vaginal operation is here also particularly applicable to a certain variety of cases, and less dangerous than laparotomy. Where small or moderate-sized fibromata are complicated by large pus-tubes which have ruptured and produced poorly outlined pus-centres in the pelvic cellular tissue, or where suppurative pelvic peritonitis coexists, extirpation of the fibroid and the uterus and the pus-sac, combined with vaginal drainage, is, in the opinion of the writer, infinitely less dangerous when performed by a skilful operator than abdominal section. I have a feeling of conviction

that a comparison of statistics, when advanced as an argument, is not always a perfect statement of facts. To speak plainly, the anxiety to furnish a good record of work performed gives rise to a selection of cases for operation in abdominal sections. I have seen women lying in general public hospitals, greatly reduced by more or less profound sepsis, on whom it was deemed inadvisable to perform abdominal section because of the almost certain serious result bound to ensue, and on whom an occasional vaginal cut was made to let out pus, hoping the patient might gain more strength for the coming ordeal; and yet I have never seen a vaginal operator hesitate to perform a radical operation upon such a patient, he believing confidently that it is in just such cases that the superiority of his methods is made evident.

With fibroids, to the same degree as with septic disease, the contamination of the general cavity is greatly avoided, and protection thereby given to the unaffected portion. Again, less shock is produced and the abdominal scar avoided.

In common with abdominal hysterectomy, it results in a more certain, rapid, and complete cure than mere removal of the appendages. There are certain conditions, however, relating to fibroids that demand consideration. It is conceded that the removal of a pedunculated tumor, leaving behind a normal uterus and appendages, is the ideal operation, and the most enthusiastic hysterectomist would hardly dare take exception to this statement. Submucous tumors have also been removed vaginally in numberless instances without hysterectomy; but these observations are scarcely subject-matter for this paper, which treats simply of that class of cases in which hysterectomy is to be performed.

Vaginal hysterectomy is contraindicated under the following circumstances: when the size of the tumor forbids its employment. There is most decidedly a reasonably fixed limit of size beyond which it is considered inadvisable to attempt to remove a fibroid uterus by the vagina. As it is well understood, the tumor and uterus are removed by the process known as *morcellement*, the hemorrhage being controlled by progressive application of pressure-forceps to the vessels, combined with traction of the tumor, while the mass is removed in small sections. The placing of the forceps and cutting the fibroid piece by piece take time, and when it is estimated that the time consumed will be considerably greater than that which would be required for its removal abdominally, vaginal section is usually inadvisable. In determining this question accompanying conditions should be carefully considered. A tumor the size of a fœtal head is generally considered about the limit that can be safely removed by the vagina. In making an examination to map out the dimensions of such a mass, care must be taken to estimate the aggregate volume of the different nodules. Its fixity and adhesions should also be taken into account lest these conditions interfere to too great an extent with the

necessary descent toward the vaginal outlet. The length, breadth, and resistance of the vagina, as well as the conformation of the pelvis, should be ascertained, for it is frequently easier to remove a tumor the size of a large head through a roomy pelvis and a capacious, lax vagina than one the size of an orange through a narrow, virgin vagina and a contracted pelvis.

In case of doubt, the removal of a fibroma may be commenced by way of the vagina, and, in case of difficulty, finished from above. If the forceps or ligatures have been placed properly upon the uterine arteries below, the remaining portion of the work can be accomplished in a very short space of time. If the facts can be ascertained, there are also some rare cases in which the development of such tumors from the anterior wall of the uterus and upper cervix pushes and carries up with it an adherent elongated bladder, completely obliterating the anterior vesico-uterine pouch. This condition may possibly be recognized by noting the short, receding state of the vaginal cervix and by carefully sounding the bladder-cavity. Such tumors could probably also be operated upon with less danger of injury to important structures by making use of the upper incision.

Fibroid tumors demanding hysterectomy can be operated upon successfully both vaginally and abdominally according to the indications presented. Character, size, consistency, and mobility of the tumor, the accompanying local conditions of the mass, the general state of the patient, the conformation of her parts, and a proper estimate of one's own ability and rapidity, will furnish the indication as to the choice of method. To see Baldy, or Howard Kelly, or Baer, or Krug, or Eastman, and many others remove a fibroid tumor by our modern perfected abdominal method is, indeed, almost perfection; but to see Segond or Jacobs do the same with a loss of scarcely a tablespoonful of blood, and bearing in mind that not a ligature will remain within, or a scar be visible, is almost a revelation.

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THE CAUSE OF THE DISPARITY FOUND IN BOTH HEALTH AND DISEASE ON PHYSICAL EXAMINATION OF THE UPPER PORTION OF THE CHEST.

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In the writings of our earliest authors of works on physical examinations of the chest we find allusions made to a disparity between the two

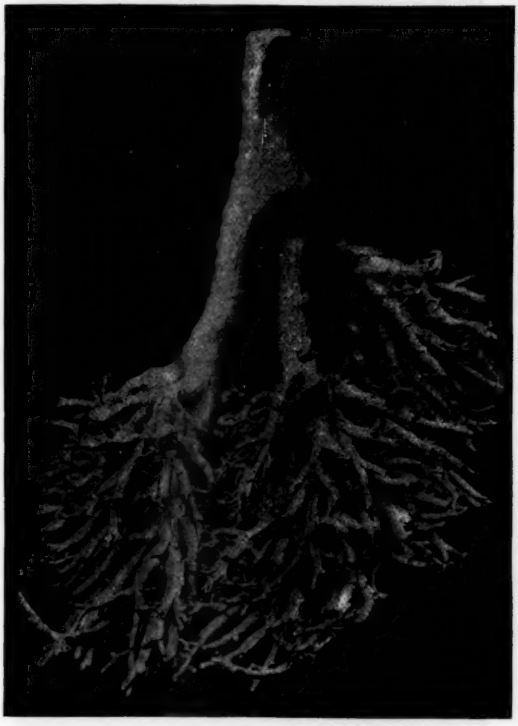
[1] Read before the Association of American Physicians, at Washington, June, 1895.

sides, as regards resonance, fremitus, respiratory and voice sounds. Without noting such variations as are accounted for by the presence of the heart, liver, stomach, etc., the most striking difference is found in comparing the infraclavicular regions of the two sides. I will refrain from quoting the complete list of authorities by reference to whom this point might be established, but it may be well to state that Louis referred to it in 1843, that it is mentioned by Stokes, while a full description of this difference is given by Flint in his *Practical Treatise on Physical Exploration of the Chest and the Diagnosis of Diseases Affecting the Respiratory Organs*, second edition, 1866. He says: "The practical bearing of the fact that there does not exist in most persons an equality of resonance on the two sides in the infra-clavicular regions will appear hereafter. . . . The fact rests on observation and is independent of any explanation that may be offered." He speaks again of the same fact on page 37, and on pages 149 *et seq.* he says: "The frequent existence of a greater resonance on the right side has been well known to practical auscultators of late years, and the thrill or fremitus is greater on the right side. It may be present on that side and wanting on the left side." "Vocal vibrations, thrill, or fremitus accompany the resonance in some persons, either limited to the right side or, if appreciable on both sides, more marked on the right side. . . . The bronchial whisper is often wanting, and, when present, is feeble. It may be present on the right side and not on the left, and is louder on the right if it is heard on both sides."

The above quotations refer to differences found in health. The same differences may be found in disease. Flint says that a relative broncho-vesicular respiration is natural to the summit of the chest, in front and behind, in a certain proportion of individuals. This being the fact, it follows that the question as to whether this modification of the respiratory murmur is due to disease or not pertains to its presence in the right side of the chest. "A well-marked broncho-vesicular respiration on the right side may not indicate more than a natural disparity. To be considered as a morbid sign, on this side of the chest, the broncho-vesicular respiration must be accompanied with other signs of disease." Quoting further from Flint, regarding exaggerated vocal resonance and bronchophony, we find this statement: "The difference, however, observes a regular law, namely, that the greater relative intensity is on the right side; and this is found to be the case over all the regions on this side, but is especially marked on the summit in front. . . . A whispering sound louder on the left than on the right side is a morbid sign. The character of the broncho-vesicular respiration should be strongly marked at the summit of the right side to be considered as evidence of disease, but, on the other hand, if situated on the summit of the left side, it almost always points to a morbid condition."

Dr. Vierordt might also be quoted to the same effect, and the same might be said concerning almost all authorities, including our teachers of to-day, in manuals for class-work, S. S. Burt on *The Exploration of the Chest*, C. M. Page in his third edition of *A Handbook of Physical Diagnosis*, James Tyson, and all others that have come within my reach. Many have undertaken to account for this disparity of the physical signs, but all the arguments are included in Gottman's explanation "That the increase in fremitus on the right side in health is accounted

FIG. 1.

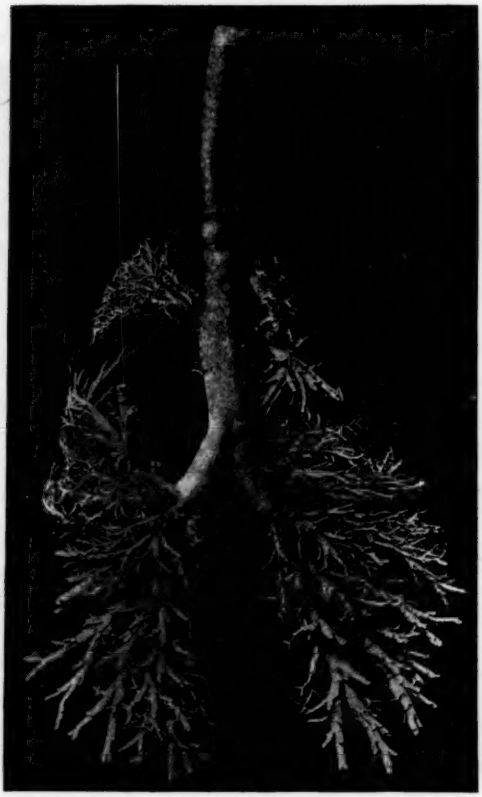


for by the fact that the principal bronchus is wider, is joined to the trachea at a less acute angle, and is situated nearer the vertebral column than the left. The latter is also separated from the spine by the œsophagus and the aorta."

It is not the object of this paper to discuss these well-known anatomical modifications. I desire to call your attention to an unrecognized

cause of the disparity of the sounds elicited in the superior zone of the chest. That this cause has not been described before in accounting for the difference found in physical examination of the lungs is all the more surprising, as the feature is so striking and apparent. I would call your attention to these two casts which have been prepared to throw light on the exact anatomical relations of the bronchi. These casts are

FIG. 2.



made by pouring a metallic alloy of very low fusion-point—about 140° F.—into the lungs through the trachea, the temperature of the molten metal not being sufficiently high to burn the tissues. A complete cast may thus be made of the larger and of many of the smaller bronchial tubes. The lung-tissue is removed from around the casts by solution in strong lye. It will be observed that the bronchial tube going to the

right upper lobe (as indicated by a strip of paper glued around this part of the cast) is given off at a point very near the origin of the right bronchus, and, in the case of the lung here represented, fully two and a half inches above the corresponding left bronchial tube (also marked by a strip of paper). This is not an anomaly, but, as has been shown by numerous experiments, is the common arrangement in the case of the human lung. The position of the superior bronchial tube of the right side varies little in most individuals, but it sometimes takes its origin higher than is shown here, and, in exceptional instances, it may come off from the trachea well above the bifurcation, as is shown by Quain in his two-volume edition of anatomy, as well as by Ewarts in his work on the *Bronchial Tubes and Vessels*. This fact is not mentioned by Gray nor even by Sappey in his four-volume treatise on Anatomy, nor have I discovered an allusion to it in any other work that I have examined, although the tube is pictured correctly in cuts made from castings of the lung.

It will be seen by comparing the arrangement of the bronchial tubes of the two lungs from below that the truly extra lobe on the right side is, as has been inferred by Aeby, the upper one, and that the upper lobe of the left lung is the homolgue of the middle lobe of the right lung. Not having been able to procure a cast of a human lung showing the right superior bronchus originating from the trachea, I will invite your attention to this second cast taken from a sheep, in which this bronchus (also marked by a strip of paper) is given off from the trachea itself fully two inches above the bifurcation. With the exception of this extra bronchus all the branches of both the right and the left bronchus come off below the level at which the pulmonary artery crosses the air-tube.

Without elaborating on the presence of this tube nor of the explanation of the transmission of the sounds of the lungs, I may say that it is pretty uniformly conceded that most of our physical signs are conveyed to the ear of the auscultator or to the hand of the examiner in the case of fremitus by vibrations of the air contained in the bronchial tubes. Cavernous or tubular sounds are yielded by these tubes unless their vibrations are modified by passage through vesicular portions of the lung. In any case, however, the large tubes form the principal media of transmission. It, therefore, becomes very apparent in viewing these casts that in health, or in like conditions of disease on the two sides of the chest, this right superior bronchus will, in most cases, intensify the vibrations, which will reach the ear or the hand of the examiner by a shorter route than must occur on the left side. The presence of this extra air-tube may also serve to explain the relative frequency of certain diseases on one side or other of the chest. I do not, at present, care to go into this matter, but merely wish to emphasize the

fact that this tube acts as the principal factor in inducing a disparity between the physical signs elicited in an examination of the two lungs, and that, more surprising still, the very existence of this tube seems to have escaped the notice of most of our anatomists and all of our authorities on physical examination.

RELATIVE AORTIC INSUFFICIENCY CAUSED BY CHRONIC FIBROUS MYOCARDITIS.

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of Chicago:
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The patient was a negro laborer, a widower, fifty-four years old. His family history was negative. He drank to excess, smoked moderately, and acknowledged no venereal disease. Of previous illnesses the patient recalled only malaria and an experience with rheumatism lasting nine months. Four weeks before admission to Cook County Hospital he suffered from dyspnœa, thoracic oppression, pain and swelling of the legs, tympanites, anorexia, coughing, and occasional vomiting.

Eyes, ears, throat, nose, and tongue negative. Intellect clear. Orthopnœa; anasarca; ascites. The cardiac dulness was bounded by the third rib, midsternal line, and left midaxillary line. There was free respiratory excursion of the lungs over the heart. The apex-beat, visible in the sixth and seventh interspaces, was diffuse, heaving, strong, and exhibited some rotatory retraction. There was no precordial prominence. The second aortic tone was faintly heard over the anatomical seat of the valve, and at the level of the second rib it was replaced by a soft protracted blowing murmur best heard by immediate auscultation. The tricuspid tones were pure, as were the mitral. The systolic tone was somewhat weak, and the diastolic sound was succeeded by a soft blowing murmur, not only synchronous with the aortic bruit, but identical in timbre and gradually increasing in intensity as the stethoscope progressively neared the aortic valves. The pulmonic sounds were pure and unaccentuated. Quincke's capillary pulse was absent. The radials showed a pulsus frequens, altus, celer, rhythmicus. The sphygmogram gave a rapid ascent and descent, a high pointed apex, and a poorly marked dicrotic wave. On auscultation of the femoral artery, two tones were heard, while but one tone in systole was detected over the carotids. The peripheral vessels pulsated visibly and were not atheromatous. The lungs were normal everywhere, save over the left lower lobe posteriorly, where relative dulness and subcrepitant and sibilant râles were elicited. The abdomen was negative except for free peritoneal fluid. The urine was acid, 1017, containing some albumin and calcium oxalate crystals. During the twenty-three days the patient was under observation the pulse remained at 90 and never was irregular. The temperature-curve was uneventful, save for two elevations of 100° and 101°. The bowels moved every day. The treatment was tr. digi-

talis, 0.7, strychnia, 0.002, and diuretin, 0.6, q. i. d. Alcohol sweats failed, and a full warm bath was given each day. Morphine was imperative on account of dyspnœa. The later clinical notes mention delirium, pain in the left side, increasing anasarca, and ascites. On the twenty-third day the patient became suddenly comatose, the pupils contracted, the breathing became labored and sighing, and the puise grew irregular. Despite free stimulation with digitalis, strychnine, nitroglycerine, and atropine, the patient died in the sixth hour of coma.

Autopsy. Rigor well developed; pupils equal; nutrition good; anasarca; pericardium somewhat thickened; enlarged left ventricle compressed left lower lobe. Heart weighed 630 gms. Arch of aorta not dilated but somewhat atheromatous; no arterio-sclerosis in peripheral arteries. Aortic and pulmonary valves competent by the hydrostatic test; mitral and tricuspid ostia admit three finger-tips; every valve perfectly normal; no thickening, no adhesions, no deformity. Left ventricle measured 10 cm. long and 2.5 cm. thick; right ventricle 10.5 by 0.6 cm. The routine incisions made perpendicularly into the heart's outer surface showed no myocardial alterations. Incisions parallel to the long axis of the heart, as advised by Koester, revealed an enormous number of cicatrices imbedded in the apparently uncomplicated hypertrophy of the left ventricle. The largest number of scars was found in the lower half of the anterior surface of the left ventricle near the apex and in the posterior third of the same chamber-wall near the auricle. These myocarditic areas were partly narrow bands of glistening cicatricial tissue located midway between the endo- and pericardium. Elsewhere were firm white plaques the size of a finger-pulp. A few isolated cicatrices occurred in the interventricular septum and the musculature of the right heart. Both coronary arteries were markedly atheromatous, but the left more than the right. In several places the lumen of the left coronary artery was greatly reduced, but beyond the stenotic plaques the lumen resumed its normal calibre. Here and there were minute atheromatous ulcers upon which, as well as upon the stenotic sites, were thrombi whose ante-mortem nature was shown by their firmness, adherence, and whiteness. The left lower lobe was compressed by the enlarged heart, and to touch it was resistant and contained little air, hence atelectasis from compression. The right lung was vicariously emphysematous—voluminous, pale, lobules larger. The right pleural cavity contained half a pint of clear serous fluid and the peritoneum two quarts of the same. The kidneys and liver were slightly enlarged and presented macro- and microscopically the characters of incipient cyanotic induration. Spleen, pancreas, gastro-intestinal tract, peritoneum, nervous system, bladder, ureters, and gall-bladder negative.

Clinically the case was a typical aortic regurgitation with consecutive ventricular hypertrophy, with dilatation and appropriate arterial phenomena. The post-mortem diagnosis was arterio-sclerosis of the coronary arteries, coronary thrombosis, and resulting myocarditis fibrosa chronica; hypertrophy and dilatation of left ventricle; compression of left lung; passive hyperæmia of liver, etc. Ante-mortem and post-mortem observation excluded a mitral lesion. The necropsy pronounced the semilunar valves normal. Hence the only lesion which can be con-

sidered is relative aortic insufficiency, in whose mechanism factors other than valvular are concerned.

Aortic is the rarest of all relative insufficiencies. In pulmonary embolism a relative pulmonary lesion occurs. Relative mitral inadequacy results from any cause operating through ventricular hypertrophy and dilatation. Atrophy of the papillary muscles, caused by pressure of a retrograde blood-column in aortic regurgitation, induces mitral incompetence. Bamberger described relative mitral lesions whose antecedent was fatty degeneration in the papillary muscles. Perverted innervation and inflammation of the muscular papillaries are additional causes.

The *rôle* of myocarditis in valvular lesions is circumscribed. It often selects the papillary muscle of the left mitral valve, and by cicatricial deformity prevents its systolic closure. More rarely it produces a genuine cardiac stenosis in the conus arteriosus pulmonalis S. aorticus. In a fairly exhaustive review of the literature of relative aortic insufficiency I have not found an instance due to myocarditis. It is possible that similar cases have been overlooked, as the longitudinal incisions are seldom employed.

The combined literature of England, France, and Germany does not record more than about twenty-five cases of relative aortic insufficiency, and some of these are reported twice, though dearth of details precludes their detection. Corrigan first recognized this phase of the disease, which bears his name. The independent existence of relative aortic regurgitation has been denied by many eminent clinicians. American authors do not mention its existence. Among English internalists Bramwell[18] states that aortic incompetence is never muscular. He speaks of increased arterial tension, dilatation, and aneurism of the aorta ascendens as causes of aortic regurgitation. Rosenheim[4] writes that to many observers it is questionable whether, without changes in the aortic valves, a relative insufficiency due to dilatation of the aorta may occur. Guttmann[21] questions its occurrence. Potain,[9] Rendu, and Charcellay deny, while Raynaud, Paul, and Huchard affirm its existence.

In considering aortic diastolic murmurs a preliminary consideration of all endo- and extra-cardial diastolic bruits is necessary. Fagge[11] enumerates among the causes for a diastolic murmur at the base of the heart aortic and pulmonary insufficiency, aortic aneurism, dilatation of the arch, and patent ductus arteriosus. Leyden recognizes diastolic aortic murmurs from relative aortic inadequacy and aneurismata of the arcus, aorta descendens, and abdominalis.[23] According to Hope,[12] a dilatation of the aortic ostium causes aortic regurgitation, the valves being intact. He cites a case of Evans in which a diastolic murmur resulted from rupture of the aorta into the pulmonary artery. Flint describes a short diastolic murmur produced by retrograde movement

of the blood-current in the aorta, with competent aortic valves.[15] It is due to atheroma, and is always preceded by a systolic murmur. In rare instances[3] the diastolic murmur is independent of valvular or aortic lesions, and, hence, is strictly accidental. Its origin in some cases, as was first recognized by Rosenbach, is in the large veins near the heart, and its cause is the venous current, especially in anæmic conditions.[19] Such murmurs occur during diastole, when the centripetal venous flow is greatest. Their anatomical seat is: 1. The vena cava inferior, located by a murmur loudest over the lower part of the sternum. 2. The internal jugular vein (Sahli).[18] These murmurs can be extinguished by pressure on the vein. They are increased by turning the head laterally, by inspiration and position. 3. Possibly in the vena cava superior. In pernicious anæmia a diastolic murmur, referable to a weakened cardiac musculature, is sometimes heard. Guttmann[23] never heard an anæmic diastolic bruit. Litten[23] recalls an anæmic marantic woman in whom a diastolic murmur was interpreted by Frerichs as an aortic regurgitation, the autopsy showing normal aortic valves. Two cases of Duroziez's,[24] in which the clinical symptoms were those of aortic inadequacy, revealed on autopsy perfectly intact valves. He referred the bruit to the vena cava inferior. Litten, without knowledge of Duroziez's report, had observed a retro-sternal diastolic murmur appearing and disappearing without signs of aortic disease. Gerhardt[23] surmises that an accidental diastolic murmur may originate in spots of the pericardium.

An apparent aortic regurgitation (Schwalbe[22]) proved to be an endocarditis parietalis sinistra, with secondary ventricular dilatation. The valves were but slightly incompetent by the hydrostatic test, and perfectly normal. Sansom and Balfour[1] believe that a diastolic bruit, due to distention of the aorta and subsequent imperfect coaptation of the aortic semilunar valves, may be transitory. Duroziez believes that the murmur varies while the lesion is constant. Findlayson[2] has described two cases of diastolic murmur in which the aorta was atheromatous, but valves intact. He denies that the valves were incompetent. Fütterer observed, in the autopsy of a case dying in Leube's clinic, a tear in the wall of the aorta, producing a pocket which came between the valves, rendering them incompetent. Leube,[3] while commenting upon its infrequency compared with relative mitral lesions, admits its individuality, and enumerates among its causes interstitial nephritis, dilatation of the aorta and left ventricle. Friedreich,[5] Corrigan, Aram, Skoda,[16] Peacock, and Alvarenga,[9] mention relative aortic regurgitation. Weiss[17] concludes that diastolic murmurs are almost invariably organic, but Fraentzel[6] firmly asserts the existence of diastolic murmurs independent of structural changes in the circulatory apparatus. An aortitis acuta

in Moxan's case[14] caused such relaxation of the aortic wall that the aortic semilunars could not close their ostium.

In comparatively recent times (1869) Lebert and Perls[20] have established relative aortic insufficiency upon a firmer anatomical basis. Their experience demonstrated that in advanced age the aorta becomes dilated and the ostium aorticum becomes too large an orifice for the valves to cover. Jaccoud,[19] over thirty years ago, reported a case of synechia cordis in which the left ventricle was so widely dilated that relative mitral and aortic regurgitations resulted. In nephritis Bouveret[25] observed an aortic regurgitation, but the autopsy showed that the aortic valves were intact and the aorta slightly relaxed, with chronic nephritis. A diastolic murmur was heard in a case of uræmia developing in the course of chronic interstitial nephritis. On post-mortem the anticipated renal changes were identified, the left ventricle was hypertrophied, the aortic cusps were normal and competent by the hydrostatic test; there were slight myocarditis and incipient arterio-sclerosis of the aorta with diminished elasticity in its wall. An instance of aortic regurgitation (Gerhardt[23]) had no pathological basis other than a dilated left ventricle. Renvers[7] has described two examples of aortic regurgitant murmur in which, at autopsy, the left ventricle was dilated and with it the root of the aorta. The first case was due to hard labor producing a cardiac dilatation, which, in its turn, caused the dilatation of the aortic ostium and the insufficiency clinically observed. In the second case arterio-sclerosis of the aorta, dilatation, and hypertrophy of the left ventricle and dilatation of the root of the aorta were the pathological diagnosis. Neusser diagnosed an indirect aortic murmur, but the necropsy proved the valves normal.

A close analysis of the etiology of relative aortic regurgitation establishes two principal anatomical agencies: first, dilatation of the aorta; and, secondly, a dilatation of the left ventricle. Aortic dilatation depends upon atheroma, senile involution, aneurisms, parietal tears, and aortitis acuta. Dilatation of the left ventricle finds its cause in excessive muscular exertion, peripheral arterio-sclerosis, aortic alterations. synechia cordis, increased arterial tension, endocarditis parietalis, nephritis, fibrous myocarditis—as in this case—or in idiopathic dilatation Schwalbe adds another causal factor, relaxation of the aortic valves due to reduction in their elastic fibres and increased arterial tension. One or both of the causes first named includes every phase of causation.

The clinical diagnosis of relative aortic incompetence is involved. Groedel[3], [27] describes the murmur of this lesion as uncommonly loud, musical, and audible at some distance, which characters are explained by the fact that the intact valves are thrown into rhythmical vibrations by the retrogressive blood-current they cannot resist. Although these "distance"-murmurs are heard in health and in loosening of the pockets

of the aortic valves, yet in pronounced singing diastolic murmurs relative aortic regurgitation may be reasonably suspected. The singing murmur reinforced by dulness over the aorta ascendens has made an intra-vitam diagnosis possible. It may be remarked that the murmur in our case was the protracted breathing murmur usual in aortic regurgitation of organic origin, and, consequently, the character of the bruit in itself is no criterion. While it is established that murmurs play a minor *rôle* in the diagnosis of valvular heart disease, diastolic murmurs have been invested with a greater dignity than systolic, as they are rarely accidental. Fraentzel insists upon the subordination of cardiac murmurs to other physical signs. Cases are recorded in which no murmur has been heard in organic aortic regurgitation, as well as instances in which all the cardio-vascular symptoms of this disease except the murmur have been present while the valves remained normal. Venous diastolic murmurs can be excluded by the absence of left ventricle changes. Renvers comments that many cases of alleged healing of aortic incompetence were relative insufficiencies. Upon review of the clinical history it seems that the inefficacy of digitalis and all cardiants with the rapid course might in a future instance suggest myocarditis, and hence an etiological datum.

The pathological anatomical diagnosis is partly negative by exclusion, partly positive, with co-operation from clinical findings. Caution is needed in pronouncing the valves negative, especially when arteriosclerosis of the aorta with dilatation is the cause. Aortic atheroma may shrink the semilunar cusps and cause their excentric separation by dilatation of the ostium. Eichhorst insists that very slight changes in the valves may produce incompetence. The hydrostatic competence test is by no means final, as it does not represent vital conditions.

The mechanism of this condition is obvious when the analysis of the causal factors is considered. The relation a dilated aorta bears toward relative aortic regurgitation is self-evident. The *rôle* of the left ventricle has not to my knowledge received adequate consideration, except from Renvers, who points out that the process is the reverse of that occurring in organic aortic leakage. Organic aortic disease antedates the ventricular dilatation and hypertrophy, while in relative insufficiency the ventricular change precedes and causes the aortic lesion. Renvers describes minutely the structure of the fibrous auriculo-ventricular rings, reinforced by accessory fibres, the fila coronaria and the tendines coronarii, which latter by connective-tissue filaments, elastic bands, and muscular fibres connect the ventricular wall and the aortic orifice by one set of fibres and by a second series unite the wall of the aorta with the auriculo-ventricular ring of the mitral orifice. Perfect mitral and aortic closure depends upon the integrity of the tendines coronarii. The ventricular musculature is inserted into the auriculo-

ventricular ring, and if by increased arterial pressure the left heart-chamber is dilated, insufficiency of both valves of the left heart is not a remote consequence.

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REVIEWS.

A Monograph on Diseases of the Breast; their Pathology and Treatment, with Special Reference to Cancer. By W. Roger Williams, F.R.C.S. London: John Bale & Sons, 1894.

Mr. Williams, whose previous work in this same direction has been noteworthy, has now given to the diseases of the breast a broad and comprehensive consideration which makes his monograph the most valuable contribution of recent years to our knowledge of the subject.

While his conclusions may differ somewhat from those of many of his readers, there can be no question of the care with which he has collected the facts which form his premises, nor of the interesting and scholarly manner in which he has set them forth.

The chapters on the ontogeny and phylogeny of the gland; on its morphology, secretory anomalies and variations, either congenital or acquired; on its hypertrophy in both females and males, include many examples of the author's application of modern scientific methods to the problems of surgery.

In the space at the reviewer's disposal it will not be possible to give the arguments employed in many cases, but a *résumé* of the conclusions as to some of the most important subjects cannot fail to be interesting to those who have not seen the book.

Schwinzinger's suggestion that removal of the ovaries should be practised to bring about atrophy of the mammæ in order to prevent the development or the recurrence of cancer is considered in the chapter on involution and atrophy, and is very properly negatived. According to most oöphorectomists, extirpation of the ovaries in adult human females is seldom followed by marked mammary atrophy or the loss of feminine qualities, other than those of menstruation and procreation. Keppler, however, distinctly states that in most of his castrated patients the breasts subsequently wasted and tended to revert to the male type. The truth seems to be that when the essential sexual organs are removed early in life, before the secondary sexual characters have become thoroughly well established, the latter subsequently abort; whereas when the removal of these organs is deferred until the secondary sexual characters have become well established then the latter generally persist, provided that the patient is still in the prime of sexual life.

Polymastia are regarded as true reversions to ancestral types, and it is considered as a significant fact that supernumerary mammary structures appear only in definite positions, which almost invariably correspond with those occupied normally by the glands of polymastic animals. "On the whole," says Darwin, "we may doubt if additional mammæ would ever have been developed in both sexes of mankind, had not man's early progenitors been provided with more than a single pair."

Mammæ erraticæ, in which the abnormal glands occupy anomalous positions, are regarded as due to reversion to ancestral arrangements much more ancient than those reproduced in ordinary cases of polymastia, and the author thinks that his investigations prove that highly specialized structures like the mammary gland, with its nipple and appendages, never develop suddenly in any human being, except in response to ancestral hereditary influence. He rejects the opposing argument based on the presence of supernumerary teeth and mammæ in the walls of ovarian dermoid cysts, for the reason that while he admits that the sequestration of a portion of the cutaneous matrix, at an early stage of development, enables us to understand the presence of hairs, sebaceous follicles, sweat-glands, and other normal dermal structures in the walls of such cysts, he does not believe that highly specialized structures like mammæ and teeth can be thus produced from a cutaneous inclusion, but that it is far more possible that in such cases we have to do with very imperfect parasitic fœtuses, in which only the teeth or mammæ have survived.

Gynecomastism presents an example of what he calls the latent hermaphorditism of every human being. Castration when practised prior to puberty hardly ever causes hypertrophy of the mammary glands; hence Oriental eunuchs, who are castrated at a very early age, are never affected in this way. Similarly, castration of adults over thirty years of age is hardly ever followed by mammary hypertrophy. It is only when testicular destruction supervenes during the heyday of sexual life that gynecomastism subsequently ensues. As previously mentioned, in women, the effect of removal of the ovaries, under similar conditions, is to determine mammary atrophy. These apparently contradictory facts, he thinks, are rendered intelligible by reference to the principle of "correlated variability." It is a very remarkable fact that in every female all the secondary male characters, and in every male all the secondary female characters, exist in a latent state, ready to be evolved under certain conditions. It seems perfectly warrantable to assume that the normal condition of the mammæ in each sex is determined by correlation with the essential sexual organs. When the latter are destroyed the correlated integrated force determining mammary development also fails, so that the latent tendency to develop the opposite sexual characters then becomes manifest. His views as to the varieties of neoplasms of the breast must be passed over with the exception of those which relate to the extraordinary frequency with which the reproductive organs in females are attacked—nearly 70 per cent of all neoplasms in women. His theory in regard to this may be given in his own words:

"From the fact that both of these parts are subject to remarkable post-embryonic developmental changes, it may be inferred that they are normally rich in cells, which still retain much of their embryonic capabilities for growth and development. It is probably owing to this peculiarity that they are so much more prone to originate neoplasms than other parts of the body.

"The following considerations tell in favor of this view: It may be said of neoplasms in general that they arise from archiblastic (epithelial) structures much more frequently than they do from parablastic (connective tissue) ones. Thus, of 13,824 primary neoplasms, 72 per cent. originated from the archiblast, and only 28 per cent. from the parablast. In the breast archiblastic neoplasms predominate to a still greater degree, for I have found that no less than 95.74 per cent. of all such neoplasms have this origin, whereas only 4.26 per cent. arise from the parablast. Now, of all the tissues of the

body, the archiblastic ones have on the whole departed less from the primordial type than any others, hence their cells still retain their primitive powers of growth and reproduction in a higher degree than others. It is to this that I attribute the greater proneness of archiblastic tissues to originate neoplasms under pathological conditions."

He believes that both on *a priori* grounds and on the existing evidence the germ-theory of cancer should be rejected unhesitatingly, and thinks that "the microbe of cancer has not yet been discovered, because in all probability it does not exist." As to contagion, there is not a single authentic instance of the transmission of cancer from one individual to another, and the alleged successes in the attempts to transmit it to lower animals should, he thinks, be accepted only in a tentative sense.

He classifies mammary cancer as "acinous" (94 per cent.), and "tubular" the "duct cancer" of Bland Sutton and others. This classification finally shelves the ancient term "encephaloid," for when the villous papillomata, tubular cancers, myxomata, carcinomata myxomatodes, and sarcomata—hitherto generally confounded under this head—have been assigned to their proper groups, nothing remains to which this obsolete term can properly be applied.

Local recurrence of cancer he regards, with Heidenhain and the majority of surgeons to-day, as due to incomplete ablation of the primary growth; *i. e.*, not as a real reproduction of the disease, but as a continuation of it in the surviving unextirpated fragments. His figures show that while cancer is not a senile disease, it is most infrequent at the time of life when the forces of growth, development, and reproduction are in greatest activity. In both sexes the disease begins to be frequent as soon as the period of perfection has been attained—*i. e.*, after the thirty-fifth year; during middle age and the decline of life the liability to it increases, until about the fifty-fifth year; after which period it becomes markedly less frequent, and increasingly so as age advances.

The chapter on the geographical distribution of cancer is an interesting one, but the facts do not yet justify positive conclusions. The author thinks that the explanation of these variations must be sought in the conditions of life peculiar to the respective populations. "Generally speaking, the cancer mortality is lowest where the struggle for existence is hardest, the density of population greatest, the tubercle mortality highest, the average duration of life shortest, the general mortality highest, and where sanitation is least perfect—in short, among the industrial classes; whereas, among the wealthy and well-to-do—where the standard of health is at its best, and life is easiest, and among the agricultural community, there the cancer mortality is highest." Other things being equal, there are, in his opinion, no more potent factors in the causation of cancer than high feeding and easy living.

The family history of 134 women with mammary cancer seems to show that the disease is correlated with, *a*, pulmonary tubercle, *b*, insanity, *c*, apoplexy, *d*, arthritic troubles, and furthermore, and strange to relate, with great longevity on the part of the parents and equally marked fecundity. It might be thought that the number of cases does not justify such sweeping conclusions, but Mr. Williams states that although they are based solely upon facts derived from the study of the family histories of women with cancer of the breast, they are nevertheless, as he has ascertained, equally valid for cancer of all parts of the body. As to

the prevalence of cancer, he considers its position unique. He estimates that in 1840 there were 4500 persons suffering from cancer in England and Wales, whereas now there are about 40,000. No other disease can show anything like such an immense increase.

The influence of trauma and of pre-existing inflammatory lesions he minimizes, contrary to the widespread belief both in the profession and among the laity, and concludes his careful review of this part of the subject as follows: "The outcome of all this is that intrinsic causes are much more important factors in the origination of cancer than extrinsic ones, which are by no means its necessary antecedents. In the vast majority of cases the outbreak of this disease appears to be entirely spontaneous; that is to say, it cannot be attributed to the immediate action of any appreciable extrinsic cause whatever. The occasional transformation of innocent into malignant growths must be admitted, but he thinks this very different from admitting that such neoplasms are specially prone to develop malignantd isease. This is disproved by the extreme rarity of the coincidence. My investigations show that non-malignant mammary neoplasms are less liable to originate cancer than are the glandular elements of the breast itself."

Transition from one species of malignant new formation to another has never been verified.

His mode of operation involves the complete extirpation of the breast with its various prolongations—too commonly neglected—the removal of part, or the whole, of the sternal portion of the pectoralis major and the thorough cleaning out of the axillary fat and glands. This is now the practice of the majority of surgeons everywhere, yet while so excellent an authority as Sutton says "The axilla should not be opened unless there is good reason to believe that its lymph-glands are infected," it seems proper to emphasize the above teaching which certainly has behind it the weight of modern authority.

The latter chapters of the book are no less complete and instructive, and deal fully with the less common forms of malignant diseases and with the inflammatory and suppurative lesions of the breast.

The monograph is one deserving the highest commendation even from those who do not accept the author's pathological views, as it is written in the true scientific spirit and bears witness on every page to wide reading, industrious and painstaking compilation, and original thinking. It is a most valuable addition to the literature of the subject. J. W. W.

DIE CAUSALE BEHANDLUNG DER TUBERCULOSE. EXPERIMENTALLE UND KLINISCHE STUDIEN. By VON EDWIN KLEBS.

THE TREATMENT OF TUBERCULOSIS. By EDWIN KLEBS.

THIS treatise of Klebs makes a book of 630 pages, and contains much of interest on the pathological anatomy of the disease. It is divided into two parts, and in each part there are several chapters. The object of the book is to show the favorable result of the treatment of tuberculosis by a substance which he has obtained from Koch's tuberculin. The substance derived from tuberculin he first called tuberculocidin, but by

using a purer form of tuberculin, which he obtained by growing the tubercle bacilli on liquid media, he produced a tuberculocidin of greater purity and efficacy, which he calls antiphthisin. The antiphthisin is patented. The theories of the general pathology of disease which he derived from its anatomical study are in accord with the supposed mode of action of antiphthisin and its curative effect.

In the introduction he says the idea that tuberculosis represents a disease from which recovery is possible conforms with the facts shown by its anatomical study. Nothing is more common at autopsies than various evidences of spontaneous recovery from tuberculosis. In various parts of the body conditions are found which admit of no other interpretation than that the disease has existed here and has been recovered from. His attention was early called to the varying results which were reported of the treatment with tuberculin. In some of the reports it seemed to exercise a definite control over the disease. In other cases there was no such control. It seemed probable to him that these variations might depend upon the composition of the tuberculin. Tuberculin should not be considered as a definite chemical substance, but as a mixture of various substances, some of which might exert a favorable action, while other substances contained in it either had no action or an injurious one. He made the attempt to separate from the tuberculin those substances which exert a favorable action on the disease from the others. Koch's theory that the favorable action of the tuberculin consisted in production of extensive necrosis, with a walling up of the tubercle bacilli in the necrotic material, did not seem to him to correspond with the facts. He also thought that the second idea of Koch's, that the tubercle bacilli themselves were not influenced by the tuberculin, was not certain. Most of the theories of the action of the tuberculin come from observations made on lupus, and are not applicable to all forms of tuberculosis.

In the first chapter there is a very good historical review of tuberculosis. He speaks of his own early work on the disease and the various facts derived from its anatomical study which led him to believe in its infectiousness. He was early led to the belief that the alimentary canal was frequently the source from which infection takes place. He repeated the inoculation-experiments of Villemin, using the peritoneal cavity for the seat of inoculation, and was able to follow the course of the disease from this to other organs.

While in Berne he was struck with the frequency of miliary tuberculosis in the cattle-herders on the Berne overlands. These people live during the entire summer on the Alps, and their food consists entirely of milk and bread. The food seemed to be the only possible source of infection, and he was able to trace it to the milk. He had already shown the identity of the pearly disease of cattle with tuberculosis, and found it common in these herds. Anatomical investigation of these cases of miliary tuberculosis almost always showed the absence of old tuberculosis foci such as were described by Buhl, and he was led to regard the disease as one conveyed directly from the cattle to man by the use of infected milk.

In his earlier work on tuberculosis he thought he had discovered the specific organisms of the disease in small, round, or oval organisms which he found in the process.

In the second chapter, relating to the source of disease, he takes up the

various views as to the manner of infection. In the earlier views the lungs were regarded as the essential seat of the process and as the primary focus of infection. A more thorough investigation, based on a greater knowledge of the anatomical features of the disease, shows that this is by no means the case. After it was found that all of the pathological processes designated as scrofula undoubtedly belong to tuberculosis, there seems no doubt that the digestive tract is by far the most common portal of infection. The tubercle bacilli can enter into the tissues from the digestive tract without producing any local lesions at the point of entry, and from this they are generally conveyed to the nearest lymphatic glands and produce the disease in these. In certain cases, especially in adults, the tubercle bacilli can enter from the alimentary canal into the blood and produce a general miliary tuberculosis without any affection of the lymph-glands. The evidence of this is given in the cases which he saw in Berne, where miliary tuberculosis was produced from the using of milk of tuberculous cattle in perfectly healthy strong adults. He produced acute miliary tuberculosis in a dog by feeding it on the milk of a tuberculous cow. The course of the disease is influenced by the source of infection, the virulence of the organisms, and the resistance of the tissue. Even in the lungs the lesions of the disease differ, when the source of infection is the alimentary canal, from the inhalation-tuberculosis, in which the first evidence of the disease is seen in tuberculosis, bronchitis, and peribronchitis.

In infection by the blood the tubercle bacilli enter into the vessels of the infundibula of the lungs and find here the most suitable conditions for their growth. Pulmonary hemorrhage favors the extension of tuberculosis, in that the hemorrhagic areas offer suitable places for the development of the organism. He thinks that actual heredity of tuberculosis, which he also speaks of as an intrauterine affection, is not to be denied, but takes place very rarely. It is possible that this intrauterine infection can take place either from the mother or from the father.

Immunity in tuberculosis may depend upon a number of conditions, among which the vascularity of the organ into which the tubercle bacilli first enter is of primary importance.

In the third chapter he gives the action of tuberculin on infected guinea-pigs. He shows in various ways that tuberculin may have a direct destructive action on the tubercle bacilli, and also may produce a condition of immunity. The spontaneous healing of the tubercle, as far as can be told from observations made on man, is due to three different processes: Necrosis and exfoliation of deceased tissue, as are seen in lupus, cicatricial formation,' and simple retrograde metamorphosis of the tuberculous tissue after the tubercle bacilli have been destroyed. Tuberculous tissue is analogous to that produced around parasites of all sorts, and offers a certain degree of protection against the destructive influence of the bacilli. This protection of the tuberculous tissue loses its power of action as soon as the cells degenerate; that is, as soon as they lose their physiological activity or break down. The persistency of the living tuberculous tissue secures the organism from further danger.

A condition of latent disease lasting for a long time may be brought about. The latency of the disease ceases when the tubercle bacilli have so increased that they extend beyond the limits of the tubercu-

lous tissue. This last condition is especially apt to appear when the cells of the tubercle undergo a diminution in their vital resistance.

In his studies on the healing tubercle he was able to show the presence, by various means of staining, of certain chemical substances, coming from the cells, which he thinks could be of importance in the process. Among these probably the most important is the globulin which is derived from the red corpuscles. The favorable action of the tuberculin is due to an exudation produced around the tubercles under the influence of which the cells lose their rigidity and no longer protect the bacilli. They become transformed into normal cells, and offer no opposition to the entry of the fluid exudation into the tubercle, and this exudation can then exert its destructive influence on the tubercle bacilli. The local leucocytosis which accompanies the inflammatory exudation brings to the tissues nuclein, which has an action both on the bacilli and the cells.

Klebs regards as the most important constituent of tuberculin a substance which he calls tuberculocidin, which is obtained from the tuberculin of Koch by precipitation with alcohol and further purification of the precipitate.

In the second part he takes up the results of treatment of tuberculosis with tuberculocidin. In his study of the action of the tuberculocidin he divides the tuberculous process into four stages. In the first, which usually corresponds to the period of latency of the disease, the changes in the organs are so slight that they may escape a superficial examination. In animals this stage corresponds to between the second and third week after inoculation. In the second stage there is a further extension of tuberculous disease to a number of organs and an extension within the individual organs. In the lungs at this period an infiltration can be made out with certainty. In the place of the small disseminated foci there are large areas of infiltration shown by dulness on percussion. Tubercle bacilli appear in the secretion and give a certain diagnostic sign, but they are in small numbers. The third stage is characterized by the beginning of destruction in the diseased areas; cavity-formation in the lungs and superficial ulceration may also appear. As long as these are in slight degree it is possible for recovery to take place. This third stage may be regarded as the beginning of a phthisis. In the fourth stage there is a well-marked phthisis, with an extensive destruction of organs.

In all of these stages of the disease the tuberculocidin exerted a beneficial influence. This was more marked in the earlier than in the later stages.

In Klebs's first methods of producing the tuberculocidin he used Koch's tuberculin. He succeeded afterward by other methods of producing a tuberculin of a better character than that produced in the method of Koch, and from this tuberculin he has obtained a tuberculocidin which he designates as antiphthisin, which substance is patented. This antiphthisin has a much stronger action than the tuberculocidin, and has none of the unpleasant features observed in tuberculin and in the more impure tuberculocidin.

At the conclusion of the work he gives a number of letters from physicians as to the results obtained by the use of antiphthisin.

W. T. C.

DEMON-POSSESSION AND ALLIED THEMES, BEING AN INDUCTIVE STUDY OF PHENOMENA OF OUR OWN TIMES. By REV. JOHN L. NEVIUS, D.D., for forty years a Missionary to the Chinese, etc., etc. Chicago, New York, Toronto: Fleming H. Revell Company, 1895.

THE title of this book, when we first read it, raised high hopes in us. We assumed at once that it indicated a contribution to anthropological and psychological literature which would prove of great value because written by an educated and travelled observer, who had had exceptional opportunities for such studies among a strange and interesting people. We thought, as a matter of course, that we should learn, by a process of close inductive reasoning, based upon original observation, new phases of the universal manifestation of hysterical and hypnotic phenomena under the influence of crude and primitive beliefs. We had read Regnier's instructive monograph,[1] in which it is shown that these peculiar psychical perversions were important elements in the practices of ancient religions. We were familiar, of course, with the work done by Charcot and his school in illustrating these same phenomena in the middle-age witchcraft plagues. We had, and have, no doubt that a rich field remains still to be explored and reclaimed by science among contemporary African and Asiatic peoples; and we thought that we saw in the title of this book the promise of the beginning of such a work.

But we were mistaken. The book has been a painful surprise to us, and a complete disappointment. We were not very familiar with Chinese missionary literature, and we were amazed to discover how little that we can call good, useful, original, reasonable, and scientific an old Chinese missionary could put into a book as a result of forty years' observation in a strange land. A feeling in us, which was never entirely sympathetic with missionary enterprises in China and elsewhere, has been intensified into one of downright aversion by this unfortunate book.

The object of Dr. Nevius is to preserve a chronicle of certain occult manifestations among the Chinese and to prove that they were true instances of "demon-possession."

The author's claim, however, that he has made an inductive study cannot be allowed for a moment. It is so preposterous as scarcely to be taken seriously. He states that he went to China a disbeliever in demon-possession, and yet he acknowledges that he always believed in a literal interpretation of the demonology of the New Testament. What can be expected from an "inductive" philosopher who assumes everything in his premises? He claims that his study is based upon observation, whereas the argument is based upon a tissue of the crudest and most transparent superstitions and ghost-stories of an ignorant peasantry. These tales were accepted on the testimony of native and foreign Christians who evidently were as superstitious as Dr. Nevius himself, and were confirmed by replies to a circular letter from other missionaries who were of the same type of mind.

The "phenomena," in brief, were of the conventional kind—haunted houses, strange noises, destruction of dishes and furniture, table-rapping, bad luck, and last, and alone important, quite typical hysterical and hypnotic manifestations, with which alone we are concerned. All

[1] Hypnotism and Croyances Anciennes.

these phenomena were accepted by our "inductive" missionary as so many incontrovertible proofs of demon-possession. No adequate attempt was made to investigate them in a rational spirit; on the contrary, the author of the book was promptly converted to an implicit belief in this heathenish diabolism, and upon this mass of misinterpreted facts he has written one of the most extraordinarily perverted books of the present day.

The only original part of Dr. Nevius's book is in the first few chapters, in which he narrates, very inadequately and with absolute credulity, incidents of the so-called demon-possession among the Chinese. This part, which might have been expanded into a most interesting and valuable exposition of fetish-worship and hystero-hypnotic manifestations among a remote people in the depths of China, is written in such a prejudiced spirit and with such absolute disregard for all the rules of scientific criticism, that it presents material of practically little value to the anthropologist, and of such a kind as can only be accepted after much winnowing from chaff, and after careful comparison with studies by more reliable observers—which we hope may yet be made.

It is sufficient for us to note that, even according to the misconceptions of Dr. Nevius, the Chinese peasants present typical phases of that now well-recognized disorder of the nervous system known as hypnotism; that these phenomena in them are readily excited by religious emotions; that they apparently follow the same fixed laws as have governed them among all races and in all times; and that the central phenomenon of this hypnotic state is the so-called double personality.

The only attempt in Dr. Nevius's book at what we may call a scientific discussion is in his chapter on the "pathological theory." Having accepted and swallowed whole the demonological theory, he seems to recognize the necessity for differentiating demon-possession from disease of the nervous system. In his attempt at differentiation, however, he unconsciously but completely gives the whole subject away to the pathologists. According to Dr. Nevius, the chief differentiating points of demon-possession are (1) the automatic presentation and the persistent and consistent acting out of a new personality; (2) the evidence of knowledge and intellectual power not possessed normally by the subject; (3) change of moral character (which practically is the same as change of personality). The psychiatrist will see at a glance in the data for this "differentiation" the familiar stigmata of hypnotism. The so-called double personality is the central and most interesting phenomenon of hypnotism, and is now so well known that it has even become a part of the stock in trade of the average novelist—who, however, as in the case of the author of *Trilby*, exaggerates and abuses it even worse than do the missionaries to the Chinese. As for "new" knowledge—as, for instance, the faculty of speaking in an unknown tongue—we believe that there does not exist an instance in which this alleged power has not been found on careful investigation to be but the result of precedent psychical states and impressions. It is significant in this connection that this alteration of personality was so realistic in these remote and densely ignorant Chinese provincials that it gave the vivid impression that the victims were really possessed by personalities not their own, and that this impression was so strong that it completely deceived an educated man like Dr. Nevius and converted him to a belief in peregrinating devils. Surely no stronger or more unique proof can be needed of the

genuineness and completeness of these hypnotic manifestations! But if the distinguishing marks upon which Dr. Nevius relies for "differentiation" are identical with the symptoms of hypnotism, what becomes of his differentiation?

The major portion of Dr. Nevius's book is made up of a curious dialectic by which he attempts to show that there is only one explanation for these phenomena, and that that lies in the theory of possession by devils. In this attempt the author has resorted, rather indiscriminately, to a variety of writers, only a few of whom can be considered of first-class authority as specialists in neuro-pathology. Apparently because these writers cannot explain profound psychical changes in simple elementary terms, Dr. Nevius thinks that he is justified in explaining them by the crudest and most unintelligible of all theories—the theory of demons. No reference whatever is made to the modern French school, whose studies have so well illustrated the mutual relations of hysteria and religion, and whose investigations certainly cannot be left out of account in an inquiry of this kind. Dr. Nevius does not seem even to have known of these writers.

This book is a *reversion* to a lower plane of culture than fortunately now prevails. The only explanation for it is to be found in the self-evident, but lamentable, fact that Dr. Nevius, instead of converting the heathen, was perverted by them. Such a book would be impossible for any man who had not himself been far removed for a long period from the best civilizing influences. When Christian educated ministers lead in such a demoralizing witches' Sabbath as is depicted in this book, then does the gap between orthodox theology and pure science seem wide indeed. The influence of the book cannot but be wholly bad: those who believe in its conclusions will be injured in their most vital intellectual parts, while those who do not believe in them will be repelled, not only from the book itself, but from much that it is supposed to represent. In conclusion we can only ask, Are these the men who are to convert China, and are these the doctrines for the sake of which China is to be converted?

J. H. L.

A Manual of Modern Surgery, General and Operative. By John Chalmers Da Costa, M.D. Pp. 720. Philadelphia: W. B. Saunders, 1894.

In a book of over 700 pages the author presents the fundamental principles, the operations, and the accepted methods of modern surgery.

The excellent order is followed of presenting the subjects of bacteriology, inflammation and repair, the surgical fevers, terminations of inflammation, and the general traumatic infectious diseases, including septicæmia, pyæmia, erysipelas, tetanus, tuberculosis, and syphilis.

There then follows a chapter upon morbid growths, contusions, and wounds. Having disposed of these general pathological conditions, the author presents the various surgical diseases in a regional way. First, the heart and bloodvessels, followed by diseases of the bones and joints, muscles, tendons, and bursæ; diseases and injuries of the nerves, diseases and injuries of the head, surgery of the spine, respiratory organs, digestive tract, diseases and injuries of the abdomen, of the rectum and anus, of the skin, the nails, and lymphatics of the genito-urinary organs.

Then there is a chapter upon anæsthesia and anæsthetics, burns and scalds, a chapter upon bandages, and one upon plastic surgery, and the manual closes with a chapter upon asepsis and antisepsis.

It will thus be seen that the whole ground of surgery, beginning with bacteriology and pathology, is completely covered.

To review this manual in detail would be a task of little value to those desirous of a knowledge of the book. It is only necessary to say that the author has presented concisely and accurately the principles of modern surgery, and that he has suggested so clearly variety in treatment that there is no confusion in the student's mind as to the advisability of this or that method.

The only criticism of importance which it seems should be made is that the chapter upon orthopedic surgery is lacking in the knowledge of details of treatment, which is only too often found to be the case in the writings of the general surgeon upon orthopedic subjects. The chapter upon fractures is excellent. There has long been needed just the concise and careful description of each fracture, coupled with a description of its proper care, that we find in this admirable chapter. It would be satisfactory if, instead of presenting the illustrations with the bandages applied, the splints had been shown in position uncovered by the bandage. The chapter upon bandaging is excellent.

The book, therefore, as a whole, is a valuable one, and will be found of great service to those for whom it was intended. The consideration of the treatment of the various surgical diseases is most excellent and practical. This is a book which can be recommended to students in their school-work and hospital service, and is of great value to the general practitioner for ready reference. C. L. S.

LA THÉRAPEUTIQUE DES TISSUS. COMPENDIUM DES MÉDICATIONS PAR LES EXTRAITS D'ORGANES ANIMAUX. Par le DR. M. BRA. Pp. xxxi. 624. Paris: G. Rothschild, 1895.

THE THERAPEUTICS OF THE TISSUES.

SIX years have passed since Brown-Séquard startled the members of the Paris Biological Society by the recital of his personal experience with testicular fluid. The method of Brown-Séquard as presented in this substantial volume can neither be characterized as the "delusion of a senile mind," nor do we believe that the author would wish it to be designated as "the most important discovery of the century." Of the various titles to be found on the title-page we prefer the subtitle "Compendium of Medications by Extracts of Animal Organs," because it more accurately describes the book than "The Method of Brown-Séquard," "A Treatise of Histotherapy," or "The Therapeutics of the Tissues." The volume is a compendium of the results of physiological experiment, clinical observation, and personal experience. At the outset we find letters and prefaces by Constantin Paul, Mendel, Ewald, Bruns, Emminghaus, and Byrom Bramwell, before we come to the preface proper by the author. These letters are guarded, chiefly devoted to the commendation of the plan of the work or to the results obtained by the admin-

istration of the thyroid gland. After a short historical sketch we find the first 187 pages devoted to the use of testicular fluid; much of the writings of Brown-Séquard upon this subject, with which we are already familiar, are here reproduced. In fact, the author, recognizing him as the father of Organotherapy, everywhere pays tribute of the disciple to the master, and sometimes stays his critical pen that the master's words may occupy the prominent place. The cases cited were furnished by observers from widely scattered points of observation, and vary much in scientific value. Those writers who seek to explain the good results obtained from the administration of testicular fluid, either by suggestion or by virtue of its constituents, as spermine, nuclein, or sodium phosphate, receive but little attention, and the physiological basis is practically that of the originator himself, now so well known as scarcely to need repetition. This section is one of the two sections of the book; the other being that devoted to thyroid medication. Here, in spite of the author's devotion to his master, we find an evident purpose to present as strong an argument as possible, and we find attention paid to details which usually escape narration. Due credit is given to D'Arsonval, and we think rather more than their work merits, to those who have presented clinical reports. No one need refer, in vain, to this book if he seeks information as to *technique*, dose, or the application. If we might criticise the results which are recorded, we would say that they prove too much—especially those of the treatment of tabes dorsalis. Nearly two hundred pages devoted to testicular fluid and we come to Chapter III., a short page devoted to ovarian medication! The cases of Régis and Clément are merely referred to. We fear that proper consideration has not been given to this subject, and the "new woman" will feel the neglect which even the allusion to the successful treatment of forty-six old women by "*une dame Américaine*, MMe. Brown," will not atone for. In Chapter IV., the "Medication by Cerebral Gray Matter," the nervous transfusion of Constantin Paul, occupies fifty pages. For this, also, Brown-Séquard is claimed as the father on the general principle that he is the father of the method of all the organic liquids, although Constantin Paul is granted to be the adopted father. To carry the simile somewhat further, one receives the impression that the author treats this subject in somewhat of a step-fatherly fashion when he concludes that if one would use the liquid of the gray matter he should reserve it, until better information, for the treatment of neurasthenia, or indeed to employ it concurrently with the testicular fluid. The chapter which possesses the greatest interest is that in which the therapeutics of the thyroid gland is fully set forth in about one hundred and fifty pages. It is complete, save the omission of the work of Gourlay upon its chemical and physiological composition, well brought down to the date of publication, and fair in its statements. It presents one of the best reports of the most successful of the organic extracts. Carditic medication, by means of the cardine of Hammond, is presented. The criticism is one of its preparation (*étrange filtration*), and considerable skepticism. This is shown by the inquiry, "Does a carditic medication exist?" which we find at the head of the chapter, and the closing sentence, "Such, at least, is the theory propounded (*émise*) by Hammond." In the sixty pages on "Pancreatic Medication" we find plenty of theory and some facts. The literature has been thoroughly gone over, and the general conclusion is in favor of the testicular fluid

as preferable to the pancreatic fluid, at least so far as diabetes is concerned. The hepatic medication fills an interesting chapter, although it must be admitted that the conclusions are by no means definite. The use of the fluid obtained from the suprarenal capsules seems to possess considerable value in the treatment of Addison's disease, but, according to Brown-Séquard, both liquids, testicular and suprarenal, should be injected, the one after the other, at different points. The muscular medication has received but little attention; what is known is, however, well presented. Renal medication has been carefully studied, with the view that, in the future, it is likely to play a considerable *rôle* in therapeutics. The remainder of the book is devoted to medication by pulmonary substances, and by those derived from the spleen, lymphatic glands, and bone-marrow—the so-called Hæmopoietic Medication. A brief general *résumé* closes the book.

In conclusion, we heartily commend the work to the attention of the profession. Whatever the value of the methods herein described may be—and even six years are not sufficient to determine it—this much is certain, the suggestions which it contains are valuable, and in many portions, notably in the chapter upon the thyroid, one finds many practical hints of great importance. On the other hand, extreme statements, for example, those of pages 93 *et al.*, detract somewhat from the scientific value of the work. In the main, it is well printed and convenient for reference; the illustrations, however, are atrocious, giving the reader the impression that some, at least, have been reproduced from those used to illustrate the weekly medical press. We congratulate the author upon the amount of information which he has so industriously collected; we wish that some of it had been more thoroughly digested. As the book stands, its merits and defects being considered, it should have a place in the library of every progressive, well-informed physician.

R. W. W.

TREATMENT OF THE DISEASES OF THE STOMACH AND INTESTINES. By DR. ALBERT MATHIEU, Physician to the Paris Hospitals. Pp. 294. New York: William Wood & Company, 1894.

THE English translation of Dr. Mathieu's book has been received with much favor, although it must be said that it is not entirely in accordance with the latest developments of the pathology and diagnosis of digestive diseases. As a work which is devoted to treatment almost exclusively it should be strictly adapted to the vast progress that has been made in this direction.

The part treating on semeiology is adapted more to the course adopted by certain French observers than the more progressive German teachers. The multiplicity of subdivisions by Hayem and Winters are thus brought out to some disadvantage as rather increasing the complexity of terms than simplifying terminology according to pathological conditions.

The dietary directions, although often minute in detail, lack the precision imparted by the application of heat-values for nutritive purposes. Some statements are made which are not compatible with facts. Thus,

when on page 28 the author states that urine rich in phosphates becomes turbid on cooling and "clears up when heated," he had certainly the "urates" in mind and not "phosphates." When the author disclaims the use of peptones as food we can but join him in his opinion, notwithstanding the present craze to supply food by the various peptones of the market. While gastric atony is admitted to be a nervo-motor dyspepsia it is claimed here also to be often, though not always, accompanied by secretory atony, a precept which is generally disputed. That as a consequence thereof the author should think highly of ipecac as a remedy in this affection evidently arises from such an opinion, as this drug is scarcely considered more than a secretory stimulant. The recommendation of alkalies to be taken before meals and in hot drinks is in accordance with recent experiments and observations, and we can but further agree with the author when he denounces pepsin as useless in the treatment of dyspepsia. The treatment of pseudo-membranous enteritis is given in a rational manner and deserves to be followed. The researches of Bouchard regarding auto-intoxication are closely followed and the chapter on gastro-intestinal antisepsis is based upon it, with recommendation of benzo-napthol and beta-napthol for this purpose, which theoretically promise so much and practically yield so little.

The subjects of typhlitis, perityphlitis, and appendicitis are treated in a manner that is hardly in accord with the latest developments in this direction. In intestinal occlusion the electrical enema is recommended and much lauded, although perhaps its only advantage is that it does not materially interfere with subsequent surgical procedure. The appendix of a series of prescriptions is here probably as much out of place as arrays of routine prescriptions are always to be deplored in connection with general or special works on the practice of medicine. Notwithstanding some of the weak points in the book, referred to by us, it contains a great deal of practical knowledge which should prove of value to the practitioner. L. W.

DIE NASENHÖHLE UND IHRE NEBENHÖHLEN. NACH ANATOMISCHEN DURCHSCHNITTEN IN ZWELFE TAFELN DARGESTELLT FÜR ÄRZTE UND STUDIRENDE. Von DR. A. ONODI. Docent für Rhinologie und Laryngologie an der Universitat in Budapest. Wien, 1893.

DR. ONODI'S ATLAS OF THE NASAL CAVITY AND SINUSES. By ST. CLAIR THOMSON, M.D. London: H. K. Lewis.

THIS admirable little book presents in the form of pictures of sections of the skull and of the head the parts which are of interest in the study of the diseases of the nose and associated parts. The figures are cut on wood and are of natural size. The book can be warmly recommended to all interested in the subject. H. A.

PROGRESS
OF
MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF
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The Treatment of Eclampsia.

Dr. Edward P. Davis believes that eclampsia is the result of a complex irritant poison, which is produced not only by failure of excretion by the kidneys, but also by failure in the action of the liver, the skin, the lungs, and the intestines. Several cases are cited which illustrate the view above expressed. In a series of eighty-four cases, in which five hundred and sixty-four examinations of the urine were made, the author found the average percentage of urea present before labor to be 1.4. After labor, in healthy women, an increased excretion of urea is observed for several days following parturition. A second series of cases confirmed these results. The most pronounced cases showing the effects of toxæmia upon the nervous system without the occurrence of eclampsia are observed in women of highly nervous temperament, and often highly educated and intelligent women. In these patients the gradual development of malaise, headache, sleeplessness, nervous irritability, melancholia, apprehension of approaching confinement, with gradually diminishing excretion from the intestines and kidneys, form a clinical picture which must not be neglected. These patients should not be treated by the bromides. Rest and increased excretion invariably result in the disappearance of the symptoms. To study the excretory processes an estimation of the solid matters and the urea of the urine is important, and in addition the placing the patient upon a fixed diet-list. This should consist of the lighter sorts of meat, fish, oysters, birds, lamb, and mutton in moderation, with an abundant supply of fresh fruit, fresh vegetables, stale bread, and water taken freely between meals. For restless patients who excrete badly, the warm bath at night will often assist greatly in procuring sleep. Light flannel next the skin, entire absence of constriction about the waist, the use of gentle laxatives, plenty of fresh air, and avoidance of over-exertion usually suffice to keep these patients in a com-

fortable condition. In the presence of eclampsia two indications are paramount. The first is to cause prompt, thorough, and copious elimination by every possible means. The hot pack, free purgation, and saline transfusion are of the greatest importance. To be avoided are sedatives, which hinder excretion and depress the cardiac and respiratory centres. If apoplexy threatens, and a heavy, full pulse indicates bleeding, such a procedure is justifiable. It is rarely the case that a patient suffers from profound toxæmia and eclampsia without the beginning of labor as a direct result of the stimulation of the uterine nerves which the retained toxins furnish. Taking advantage of this conservative process, rapid delivery is indicated so soon as it can be accomplished without positive and severe injury to the mother. The interests of the fœtus are also here served, for the same poisons which threaten the mother often kill the child.—*Therapeutic Gazette*, 1895, No. 7, p. 433.

Taka-diastase.

Mr. Ferdinand Lascar recalls the fact that diastase has an action upon starch identical with ptyalin. Diastase is contained in a greater or less extent in the different extracts of malt, but in them its utility as a starch-converting agent will always remain a limited one. The diastase now made by takamine is a dry powder, tasteless, and of no perceptible odor, and is powerful enough to convert one hundred times its weight of starch into a soluble condition. The author has even converted 50 per cent. more than is claimed for it. One of the peculiarities of this product is the rapidity with which this conversion takes place, four minutes being sufficient so fully to produce the change that neither iodine nor the microscope can detect unconverted starch. In the making of the tests, as well as in the manufacture of the product, heat should be guarded against, as it easily destroys the action of diastase. The field of usefulness of this product is not alone in infant-feeding, but as well in the amylaceous dyspepsias of adults, which are by no means infrequent.—*Therapeutic Gazette*, 1895, No. 7, p. 437.

Arecolin.

Dr. G. Lavogna has made an experimental study of the physiological action of this new alkaloid, which is obtained from the areca-nut, which has been prescribed for the removal of tapeworm. The alkaloid occurs as the hydrobromate, a permanent, slightly hygroscopic salt, of the formula $C_5H_8NO_2HBr$. Fröhner found that it possessed sialogogue properties, even excelling those of pilocarpine; that it was also a laxative and water-extractive remedy. The author, however, ascertained that it is a myotic. Used in a 1 per cent. solution, dropped into the conjunctival sac, there is experienced a feeling of warmth in the eye; some tears and spasm in the lids follow. These symptoms of irritation last but a minute, and frequently a shorter time. After the spasm of the lids has passed away there is noticed a conjunctival, or, more properly, a bulbar hyperæmia, and a slight superficial injection of the cornea which lasts but a few minutes. After five minutes myosis commences, which reaches its maximum after ten minutes and persists about thirty minutes, when the pupils show a tendency to return to

their normal size, reaching it after seventy minutes. One and one-half hours after, slight mydriasis is noticed. The spasm of the ciliary muscle reaches its maximum in from one to six minutes, and then the refraction tends toward the normal, reaching it thirty-five minutes after the instillation.—*Therapeutische Monatshefte*, 1895, Heft vii. S. 364.

The Diuretic Action of Theobromine.

Dr. Henri Huchard believes that the future of therapeutics lies in the diuretics, because the permeability of the kidney is the safeguard of the organism, be it healthy or diseased, permitting the elimination of the toxins which it produces or it receives. The classification of Manquat divides diuretics into two groups, the mechanical and renal. The first group is further subdivided into (1) cardio-vascular and (2) aqueous. The second or renal diuretics are either (1) functional epithelial or (2) irritant epithelial diuretics. The functional epithelial diuretics are those which act upon the renal epithelium without altering it, and comprise milk, lactose, glucose, theobromine, potassium and sodium nitrates, asparagus, couch-grass, corn-silk, and elder-bark. The irritant epithelial diuretics are those which provoke diuresis by causing congestion of the kidney, as juniper-berries and cantharides. These give rise to real dangers, especially the latter, and should always be used with great care. The experiments with theobromine have shown that it does not possess any action upon the nervous system, thus differing from caffeine, which is a cerebral excitant. It is very slightly poisonous, even in large doses. It has a diuretic action less prolonged than digitalis, but more so than caffeine. This diuresis follows very rapidly as a urinary downpour; the amount of urine frequently becomes three or four pints. Very rarely it produces digestive disturbances, as nausea and vomiting, which may be avoided by prescribing the drug in capsules of seven grains each. It has no action upon the heart, arteries, or blood-pressure, and is harmless to the kidneys. It does not offer any danger of habituation nor of accumulation, and it is eliminated unchanged in the urine. Finally, it is indicated in dropsies of cardiac origin and in the anasarca of Bright's disease. If prescribed in the above dose, eight capsules should be taken on the first, six on the second and third, and four on the fourth day. To obtain the tonic effects of this drug it is employed in smaller doses, associated with equal parts of neutral sodium phosphate, for several weeks. Diuretin, sodium and theobromine salicylate are untrustworthy.—*Journal des Praticiens*, 1895, 2d semestre, No. 1, p. 5.

Accidents following the Use of Serum.

Galliard reports that a woman, thirty-three years old, entered his hospital service, complaining of a slight angina, which, however, became suddenly worse, so that subcutaneous injection of Roux's serum was administered. There was no febrile reaction nor immediate accident, and convalescence was speedily established, so that she left the hospital five days later. Bacteriological investigation showed that the membranes did not contain the [Klebs-]Loeffler bacillus, but only staphylococci and streptococci. Sixteen

days after the injection the patient returned with a polymorphous erythema and a serious acute polyarticular rheumatism, which yielded to three drachms of sodium salicylate within forty-eight hours. It is impossible not to attribute these cutaneous and articular accidents to the effect of the serum.—*Journal des Praticiens*, 1895, 2d semestre, No. 3, p. 45.

[Compare this report with the remarks of Winters, AMERICAN JOURNAL OF THE MEDICAL SCIENCES, vol. cx. p. 211.—R. W. W.]

THE CURATIVE ACTION OF TOXIN IN MALIGNANT TUMORS.

FAUSTO CAMPANINI presents a scholarly paper. He has made use of the toxins derived from a streptococcus culture to which bacillus prodigiosus was later added. The first patient suffered from a fibro-sarcomatous polypus of the naso-pharyngeal vault. The treatment gave rise to severe constitutional symptoms, resulting in great debility and anæmia, and was therefore abandoned without, however, having produced any change in the tumor. The second patient suffered from a large myxo-sarcoma of the breast. Twenty injections were given without giving rise to pain or general reaction, but inasmuch as they produced no effect the treatment was abandoned. Although the writer was apparently anxious to be convinced of the efficacy of the injections, the results obtained were not of such a nature as to merit confidence in them.—*Il Policlinico*, 1895, No. 13, p. 301.

THE PHYSIOLOGICAL ACTION OF EXTRACT OF SUPRARENAL CAPSULES.

DR. L. A. GLUZINSKI has found in his investigations of the extracts from various organs, *e. g.*, thyroid and thymus glands, liver, pancreas, spinal cord, and suprarenal capsules, that upon normal animals (guinea-pigs, rabbits, and dogs) the glycerin extract obtained from the suprarenal capsules possesses markedly toxic properties. Following the injection there appeared a paraplegia of the posterior extremities, a diminution of the sensibility of the same, while in the anterior extremities there were slight spasms, frequently a distinct opisthotonos, feeble respiration, dilated pupils, dyspnœic symptoms, and terminal general paralysis. Artificial respiration prolonged the life of the animal, providing that the heart was relatively good. The necropsy showed marked pulmonary œdema, ecchymoses, particularly in the pulmonary pleura and pericardium (in guinea-pigs), and the right ventricle and right and left auricles were strongly dilated in diastole and overfilled with blood. Apparently glycerin removes from the suprarenal capsules a substance which is extremely poisonous to the nervous system, influencing the medulla and spinal cord and producing death from pulmonary œdema. So far as investigation has now gone, the paralysis and changes in peripheral nerves and their end-plates are not to be recognized as analogous to those produced by curare.—*Wiener klinische Wochenschrift*, 1895, No. 14, S. 251.

THE USE OF THE THYROID IN THERAPEUTICS.

JORFIDA has made use of the thyroid gland in five cases of parenchymatous goitre. In two of these the tumor entirely disappeared, and in

the remaining cases there was a notable reduction in size. Detailed reports follow, in which it appears that the amount used varied from twenty-eight to forty-five drachms, and the time required from nineteen to forty-three days. In four of the five patients there was a diminution of body-weight.—*Il Policlinico*, 1895, No. 13, p. 338.

DR. FERDINAND WINKLER carefully reviews the literature. The noticeable results in myxœdema are diuresis, diminution of the myxomatous swelling, lessening of body-weight, disappearance of weariness, stiffness, and apathy. In obesity a notable diminution of body-weight has been obtained, and may even be more marked than when dietetics alone are relied upon. Both the somatic and psychic phenomena of cretinism have been markedly benefited by the use of thyroid treatment. In tetany good results have been obtained by Gottstein. In Basedow's disease and acromegaly it apparently produced no good results. Of psoriasis a few cases were benefited, but lichen planus, lupus, eczema, urticaria, prurigo, and acne rosacea were not influenced. Menzies found great benefit from it in six cases of rupia syphilitica, and Abraham a marked improvement in two patients suffering from leprosy.—*Centralblatt für die Gesammte Therapie*, 1895, Heft vii. S. 385.

THE THERAPEUTIC ACTION OF SALOPHEN IN VARIOUS DISEASES.

M. PIERRE MARIE finds that this drug should be considered as a remarkable substitute for sodium salicylate, and possesses valuable properties in acute and subacute articular rheumatism, and appears to possess them in gout. It has no action upon chronic rheumatism. One patient suffering from the chorea of Sydenham was cured in eight days. The drug presents none of the inconveniences of sodium salicylate, and has been well borne by all the patients. Because of its decomposition only in the intestine it does not produce any gastric irritation, and its slow decomposition allows of a larger dose—to seventy-five and ninety grains. Usually forty-five to sixty grains only are required, and that in divided doses. On account of its tastelessness and insolubility it can be taken suspended in pure water.—*Les Nouveaux Remèdes*, 1895, No. 12, p. 272.

THE USE OF OLIVE OIL FOR BILIARY COLIC.

DR. MICHELL CLARKE reports three cases in which an initial dose of one ounce, which was rapidly increased, floated upon the surface of a bitter acid infusion, resulted in success. Eight grains of sodium salicylate, in a mild saline purgative, were also given before breakfast two or three times each week during the administration of the oil. The maximum daily dose of the oil was eight ounces, and the duration of the treatment from six weeks to three months.—*British Medical Journal*, 1895, No. 1802, p. 76.

THE TREATMENT OF TETANY.

DR. R. K. MACALESHER reports four cases. Recalling the observations of Vaughan, who obtained good results with quinine, even recovery in some cases in from eighteen to twenty-four hours, he made use of this remedy; but found that its effect was but palliative and temporary, not preventing frequent

relapses. Phenacetin, however, gave equally favorable results. If the nutrition can be improved by the use of tonics and by appropriate dietetic hygienic measures, the disease can, it is believed, be radically and permanently cured. The method of Erb, the galvanic current, the stationary cathode being applied to the sternum and the anode to the spine and along the nerves to the affected parts, has still many advocates. In view of the occurrence of tetanic symptoms after removal of the thyroid body, Stieglitz suggests a trial of the administration of thyroid gland in ordinary cases of tetany.—*American Medico-Surgical Bulletin*, 1895, No. 12, p. 721.

The Treatment of Intermittent Fever.

Dr. Aufrecht does not offer any new remedy, but insists upon the administration of quinine hydrochlorate, in capsules, not in compressed tablets, three to four hours before the expected chill, in fifteen-grain doses for adults. When, from the action of the drug, a chill does not appear upon the day when it was due, it is well upon that day to administer three similar doses. For children the tannate may be substituted, but should be given in triple the corresponding dose. For stubborn cases of intermittent fever, which do not respond to the use of quinine alone, arsenic should be added. Two pills, each containing about one-thirtieth of a grain of arsenous acid, three-quarters of a grain of quinine hydrochlorate, two-thirds of a grain of powdered liquorice-root, should be given after each meal. If the spleen is enormously enlarged and the bodily strength greatly reduced on the days of the fever, there may be given in addition to the above-mentioned pills ten grains of quinine hydrochlorate three or four hours before the attack.—*Therapeutische Monatshefte*, 1895, Heft vii. S. 355.

The Action of Nuclein in Fever or Toxæmia.

Dr. William Jacobson has used this drug in the treatment of scarlet fever, measles, diphtheria, and follicular amygdalitis. In these cases he believes that it exerts an immediate, positive influence on the toxins in the system. So far as immunization is concerned, experiments have been made only in diphtheria, measles, and scarlet fever, which apparently can be prevented by the use of five minims given hypodermatically. Failures may occur when the organism has become thoroughly saturated with the poison, and nuclein, which is Nature's antitoxin, cannot overcome the poison. When the case is severe we are not justified either in depending upon nuclein alone nor in doing without it. Careful hygiene, diet, and watchfulness of the attendants will assist in saving the patient.—*New York Medical Journal*, 1895, No. 868, p. 71.

Cold Baths in Typhoid Fever in Old Age.

Dr. A. Balognesi believes that balneotherapy is the only method of treatment which can render service in the severe forms of typhoid fever. Its application is easy for the physician and for the intelligent nurse instructed by him. The expense is small; a bath-tub, bought or borrowed, and cold water, which is found everywhere. Since the dangers of typhoid fever occur

especially in persons who have passed the age of forty the treatment should be commenced and systematically practised from the commencement of the disease; it is a preventive against complications and always shortens the duration of the disease and of convalescence. He begins by giving a sedative, calming tonic, and diuretic bath at 64.4° to 68° F., every three hours, which lasts twelve to fifteen minutes, with cold affusions over the medulla, at the beginning, middle, and end of each bath. If there is any sign of enfeeblement of the heart, kidney, brain, lung, or a physiological function which is necessary in the contest against the infection, the treatment should be increased; baths every two hours at 64.4° F., lasting from eight to ten minutes, with an affusion at 50° F. upon the neck during the progress of the stimulant bath. An ice-bladder can be placed over the heart and brain, and ice-compresses over the chest. This refrigeration should be continued until the accidents which threaten the life of the patient are rectified, and then the interval of the bath is lengthened to three hours, and their number progressively diminished until apyrexia is reached, the viscera are in good condition, and convalescence is established.—*Bulletin Général de Thérapeutique*, 1895, 24e liv. p. 530.

Chronic Coffee-poisoning.

M. Gilles de la Tourette states that the symptoms very much resemble those of chronic alcoholism, with which it is confounded. Chronic poisoning is found more often in women than in men. The digestive disturbances are expulsion of mucus in the morning, vomiting, inappetence, and disgust for food; just as in alcoholism, so the immoderate desire for coffee ends in its being the sole article of diet. The patients become pale and jaundiced, which marks the coffee cachexia. Hæmatemesis has not been observed. The nervous phenomena consist of cramps in the calves of the legs, pain in the limbs; the reflexes are preserved; there is no coffee-paralysis. Many patients do not go beyond this stage of pain and are rapidly cured by the suppression of the coffee. Others, however, present trembling of the limbs, fibrillary twitchings of the lips and tongue, vertigo, and insomnia. On the part of the heart we note slowing of the pulse. The abuse of coffee is hurtful; it is well to recognize it and to be able to combat it.—*Journal des Praticiens*, 1895, 2d semestre, No. 3, p. 46.

The Strychnine Treatment of Viper-bites.

Mr. R. P. Banerjee reports a single instance in which forty minutes after the bite upon the left foot one-fiftieth of a grain of strychnine nitrate, dissolved in twenty minims of distilled water, was injected into the left arm. In ninety minutes a second, and in an hour a third injection was given. The patient had deep sleep at night, the face and eyelids were puffy and swollen, the swelling of the foot was less, the urine was bloody. Five minims of the British Pharmacopœial solution of strychnine were given, which was repeated upon two consecutive mornings, in all one-sixth of a grain by the mouth. Strabismus, frontal headache, vomiting, diarrhœa, and delirium were noted. In spite of the considerable amount of strychnine which was

administered no toxic symptoms were produced. The squint (external) in both eyes remained permanent, and if the patient looks at a glass he becomes giddy and falls if unsupported.—*The Indian Medico-Chirurgical Review*, 1895, No. 4, p. 273.

Mr. Joshua Duke tabulates thirty-seven cases of snake-bite. Mueller, who introduced the hypodermic use of strychnine for snake-bite, declares that its action is regular and prompt, and after a time stops entirely. The snake-poison develops regularly, but remains latent for some time, so that, when it has been apparently conquered for a time, it may suddenly start on a new course of symptoms. The strychnine-injections should not be employed until unmistakable symptoms of snake-poison are perceptible, for it may act so slowly that the patient succumbs before the state which requires and neutralizes the action of the strychnine has developed. The patient must be watched for twenty-four hours after the disappearance of the last symptoms in order to be able to combat, in time, a sudden relapse. Of the thirty-seven cases recoveries took place in 67.5 per cent. Of these cases eight were treated by Banerjee, all of which recovered; in some cases the amount of strychnine was enormous (three to four grains spread over four days).

The conclusions reached are that the hypodermic injection of strychnine is the only remedy to be relied upon; these must be carried out with boldness, but only after the symptoms of snake-poison have become pronounced. If a proper amount of snake-poison to counteract the strychnine is not present in the blood, the latter may itself cause death. If the patients are moribund when seen—*i. e.*, pulseless and respiration having ceased—the intravenous method may be adopted. Although experience proves much in its favor, the remedy cannot, at the present time, be considered a certain cure for the poison of all the colubrine and viperine snakes which inhabit the Indian peninsula.—*Indian Medical Gazette*, 1895, No. 6, p. 209.

Potassium Permanganate as an Antidote for Opium-poisoning.

Dr. Nathan Raw reports five cases, four of which recovered. In the remaining instance the patient had taken over a pint of the tincture of opium, and as the reporter was about, in addition, to administer a subcutaneous injection of the antidote, he suddenly died from respiratory paralysis. —*British Medical Journal*, 1895, No. 1802, p. 76.

Cocaine-poisoning.

Dr. Schede reports that a twenty-year-old muscular man received thirty drops of a 10 per cent. solution by injection into the urethra, preliminary to the passage of a sound. There immediately appeared symptoms of poisoning which were not influenced by the washing out of the urethra and bladder. The patient became unconscious, with completely dilated pupils, at first a tetanic spasm, then an interval of quiet, followed by a complete cessation of respiration, so that artificial respiration was practised. After a short interval the spasms were again repeated; during these the pulse became weak, although it formerly was strong. Camphor, amyl nitrite, and oxygen

inhalations did not produce any effect. Soon there followed Cheyne-Stokes respiration with deep cyanosis, so that ten ounces of blood were removed by venesection. A renewal of the oxygen-inhalation was followed by a narrowing of the pupils. The spasms ceased after an intravenous sodium chloride transfusion. Seventy minutes after the first attack there appeared compulsory movements of the head and arms, twelve minutes later spasm of the right side, after ten minutes clonic spasms. Two hours from the commencement the urine was drawn; at this time the patient made masticatory movements of the lower jaw. The pulse, which at last had become better, was at this time smaller, so that the outcome appeared to be more unfavorable. Two and one-quarter hours from the beginning of the poisoning the patient showed the first reaction and gradually recovered consciousness.—*Therapeutische Monatshefte*, 1895, Heft vii. S. 370.

The Action of Cadmium and Zinc Salts.

MM. Athanasu and P. Langlois, in making a comparative study of the physiological action of these salts upon the lactic acid fermentation, have found that the law of Richet holds, viz., metals of the same group act in proportion as their atomic weights. The salts of cadmium are more toxic than those of zinc (112 to 65). Lactic acid fermentation is arrested with 0.20 per cent. of cadmium sulphate and with 1.60 per cent. of zinc sulphate. The arrest of the heart in frogs is obtained with 0.105 *per mille* of animal-weight with cadmium and with 0.150 with zinc.—*Les Nouveaux Remèdes*, 1895, No. 12, p. 273.

MEDICINE.

UNDER THE CHARGE OF

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Pleurisy and Tuberculosis.

Eichhorst (*Correspondenz-Blatt für Schweizer Aerzte*, 1895, No. 13) makes a most important contribution to this subject. He tested the character of serous exudates in the pleura by injecting some of the fluid into the abdominal cavities of guinea-pigs. In the beginning he used an ordinary hypodermic syringe with a capacity of one c.cm. Out of eleven cases examined in this way only one caused tuberculosis in the test-animals. As the later histories of some of the patients revealed tubercular lesions, Eichhorst came to the conclusion that the experiments were faulty, and especially so in the amount of fluid injected. He therefore used a syringe having a capacity

of fifteen c.cm. As before, strict asepsis was practised. Injecting this amount, he found that out of twenty-three persons who, apparently in perfect health, acquired pleurisy with serous effusion, fifteen, or 65.2 per cent., proved to be tubercular by the inoculation-test. That these figures are too low rather than too high follows from later histories of the cases. One patient, whose effusion gave a negative result, presented symptoms of tuberculosis of the lungs two months later. Eichhorst believes that in most cases the pleurisy follows tuberculosis of the bronchial glands, though in some cases it is primary. The author also gives the results of his observations on serous pericarditis. Out of twenty-seven cases, apparently spontaneous, eight proved to be tubercular. The author suggests that serous effusion in joints, the meninges, and the peritoneum may also often be tubercular.

In the discussion, Cérenville agreed with the author as to the frequency of tubercular pleurisy. He pointed out that in the latter the temperature is not usually so high as in the so-called rheumatic form. The prognosis is not always hopeless, as many cases remain free from further signs of tuberculosis. Socin pointed out the frequency of pleurisy in the history of cases of surgical tuberculosis. In his clinic 8 per cent. of such cases had a history of pleurisy, so that the later stages of such patients may escape the observation of the physician, but come under that of the surgeon.

The Etiology of Articular Rheumatism.

Chvostek publishes a preliminary communication on this subject giving the results of some original investigations (*Wiener klin. Wochenschrift*, 1895, No. 26). Singer (*Ibid.*, No. 25) endeavored to elucidate the subject by examining the urine bacteriologically in seventeen cases of rheumatism. He found staphylococcus albus ten times, staphylococcus aureus once, streptococci three times, staphylococcus albus and streptococcus twice. From the constancy of their occurrence, the number of bacteria, and their disappearance as the symptoms lessened in severity, Singer was led to look upon the cocci as the cause of the rheumatism and to abandon the idea of the etiological unity of that disease. Chvostek had a different experience. He examined twelve cases, but with positive results in only three, finding in one case diplococcus, in another staphylococcus albus, and in the third a large coccus not hitherto described. This discrepancy in the results the author thinks was due to the methods used, Singer having cultivated organisms from the urethra, whereas Chvostek avoided this source of error by obtaining the urine from the bladder with aseptic precautions. He had positive results only in cases of sepsis and gonorrhœa, and came to the conclusion that the alterations of the joints in rheumatism are due, not to the direct action of bacteria, but to the effects of toxic substances—a view supported in his opinion by the results of injections of diphtheria antitoxin. The toxic substances may be produced, for example, in the intestinal tract, by bacteria not otherwise pathogenic. The cause of the alteration in the joints is probably complex. The anatomical structure of the joints, their unprotected situation and motion, all assist. So it is that the more exposed joints are more frequently involved. In some cases previous disease may have caused a predisposition. That microorganisms can be found in certain joint-diseases the author does not deny,

but he questions the applicability of the term rheumatic to these. Perhaps various kinds of bacteria are capable of forming the toxic substances, though it may be found that certain kinds, either from widespread distribution or peculiar properties, may preponderate. Various seats of infection may be admitted, though the tonsils and the intestines are probably the most frequent.

Priapism in Leukæmia.

Kast (*Zeitschrift für klin. Med.*, Bd. xxviii. p. 79) reports the case of a man, forty-two years old, in whom priapism suddenly appeared without apparent cause. After two months the erection slowly subsided, leaving complete loss of sexual feeling, and never returned. At this time leukæmia was easily recognized by the greatly enlarged spleen and the condition of the blood—4,080,000 red to 960,000 white corpuscles. Six months later the patient died. It was found that the cavernous bodies had been the seat of extensive white thrombi, which had been followed by connective-tissue hypertrophy and induration, thus giving a mechanical explanation of this rare and hitherto obscure symptom.

The Pathogenesis of Hæmatoporphyrinuria.

Stokvis (*Zeitschrift für klin. Med.*, Bd. xxviii. p. 1) has investigated the relation of sulfonal to hæmatoporphyrin, various observers having shown that this body often appears in the urine during or after the use of sulfonal. Usually the condition comes on after long-continued use of the drug, though sometimes it appears early. Trional and tetronal have been observed to have the same results. In most cases death occurs, though the converse is not true, and hæmatoporphyrinuria is not present in all fatal cases of sulfonal-poisoning. As the origin of hæmatoporphyrin is quite unknown, Stokvis gave sulfonal to rabbits and dogs and examined the urine. In rabbits, on the second or third day after giving daily doses of 400 to 600 milligrammes per kilo, hæmatoporphyrin appeared. The amount varied greatly in different animals, and had no relation to the amount of sulfonal ingested. In dogs, after the ingestion of 65 to 120 milligrammes of sulfonal per kilo hæmatoporphyrin did not appear so early. If the drug were given daily, the animal soon died, the fatal dose being from 900 milligrammes to 2.4 grammes per kilo in rabbits, 2.6 to 3 grammes per kilo in dogs. The urine usually showed traces of albumin, hyaline and epithelial casts, and leucocytes. Bile coloring-matter could not be found, nor could glucose, although a reducing substance was present at times. Urobilin was present at times, as it has been in some cases of sulfonal-poisoning in man. Autopsies on the animals showed hyperæmia and hemorrhages in the mucous membrane of the stomach. The effused blood was almost black, and on being examined spectroscopically showed the lines of acid hæmatoporphyrin. Hemorrhages in the intestine gave a similar spectrum, though the blood and the other organs, with the exception of the liver and kidneys, did not. It was therefore probable that the hæmatoporphyrin was due to the action of acids on the effused blood. Further experiments proved this, and also showed (1) that the intensity of the sulfonal

hemorrhages in the stomach and intestines varies greatly, (2) that the absorbed hæmatoporphyrin is partly retained in the liver, and (3) that another part is transferred in the liver or elsewhere into urobilin. The sulfonal probably acts as a corrosive poison after being split up in the body. It must be borne in mind that hæmatoporphyrinuria does not occur in all cases of gastric or intestinal hemorrhage. It is only when the blood remains long enough under conditions favorable for the change, and when the hæmatoporphyrin is present in large enough quantities to be excreted by the kidneys, that the condition can occur. In normal subjects the presence of hæmoglobin in the food may cause the excretion of hæmatoporphyrin—feeding starving rabbits with raw or cooked beef has the same effect, the hæmatoporphyrinuria coming on more promptly than after feeding with beef-blood.

Aneurism of the Hepatic Artery.

Mester (*Zeitschrift für klin. Med.*, Bd. xxviii. p. 93) reports a case in which a man of forty-two years was kicked in the abdomen by a horse. This was followed by pain in the hypochondrium, intermittent icterus, vomiting of blood, and the passing of fresh or altered blood by the rectum. The diagnosis was ulcer of the duodenum. Laparotomy was performed, but without revealing the seat of the hemorrhage. Nevertheless gastro-enterostomy was made. The patient died five days later. Autopsy showed a spurious aneurism of the right branch of the hepatic artery, in the liver-tissue, and communicating with the right branch of the hepatic duct. An analysis of the nineteen cases previously reported is given, from which it appears that the diagnosis is never made during life, the condition being mistaken for ulcer of the duodenum or gall-stone.

Acetonuria and Diabetic Coma.

Hirschfeld (*Zeitschrift für klin. Med.*, Bd. xxviii. p. 176), as the result of extensive researches, draws the following conclusions: In healthy persons the exclusion of carbohydrates from the food causes an increased excretion of acetone in the urine, amounting to from 200 to 700 milligrammes a day. Full albuminoid diet is followed by less excretion of acetone than moderate diet of the same kind. As the excretion of acetone is not influenced by the ingestion of fat it cannot be due to destruction of the body albuminoids. Even small quantities of carbohydrates (50 to 100 grammes) suffice to cause the disappearance of acetone in from two to four days, a diminution occurring within a few hours after taking the carbohydrates. Various carbohydrates, such as bread, cane-, milk-, and grape-sugar, mannite, and glycerin had similar effects; but alcohol, excessive muscular exercise, Carlsbad salt, sodium salicylate, and antipyrin had no such effect. The acetonuria of gastric disease, cancer, and fever is due also to insufficient carbohydrate food.

Pylephlebitis from a Foreign Body.

Kuhn demonstrated in the Biological Society of Amsterdam (*Centralblatt für inn. Med.*, 1895, No. 29, p. 714) the organs of a patient who died of liver-abscess. It was found that a piece of cocoa-palm fibre had perforated the

wall of the stomach and penetrated the wall of the superior mesenteric vein. This caused phlebitis, which extended into the liver-tissue, producing the condition mentioned. It was diagnosticated during life as mesenteric abscess from retrograde embolism.

Chloroma.

Otto Schmidt reports a new case of chloroma from the Pathological Institute of Göttingen (*Inaug. Dissert.*, 1895). The patient was a servant-girl, twenty years old. The disease began with pain in the shoulder, followed by the appearance of a hard, almost immovable tumor in the left axilla. The tumor was partially enucleated, part of it being inaccessible. About a month later a tumor appeared in the supraclavicular fossa of the same side, soon followed by others, some of which were removed. The tumor proved to be a malignant lymphoma. The blood showed slight increase of leucocytes, the variety increased not being mentioned, but examination six months later showed there was no leukæmia. Later, tumors developed in various parts of the body, hemorrhages of various kinds occurred in the skin; there was no hæmaturia. The liver and spleen were slightly enlarged. There was marked anæmia; red blood-corpuscles, 3,000,000; red to white, 600:1; hæmoglobin, 33 per cent. The diagnosis was sarcoma and hemorrhagic diathesis. Death occurred about six months after the beginning. Autopsy revealed hard, green tumors in the left axilla, with metastases in various organs and chloromatous change in the bone-marrow. There was, in addition, tuberculosis of the right axillary lymphatics, which were not greenish. Microscopic examination showed the tumors to be made up of cells resembling large lymphocytes in a fine reticulum. The tumors were of almost board-like hardness, with little juice on scraping. Hemorrhages were not present in them. The color was partly dark-green, partly grass-green, becoming paler on exposure to the air and in various hardening-fluids. No investigations were made into the cause or nature of the color, which the author thinks is due to the character of the cells. The author considers the disease to belong clinically and anatomically to the malignant leukæmic and aleukæmic lymphomata. An interesting fact is that the primary growth was not green, though histologically similar to the later tumors. Micro-organisms could not be found in the green tumors. Schmidt agrees with a suggestion made in this journal ("Chloroma and its Relation to Leukæmia," American Journal of the Medical Sciences, August, 1893), that the case reported from Göttingen by Osterwald as one of leukæmia was also one of chloroma.

Malarial Fever.

Thayer and Hewitson, in their recent exhaustive monograph on "The Malarial Fevers of Baltimore" (*Johns Hopkins Hospital Reports*, 1895), come to the following conclusions:

Malarial fever is rare in Baltimore during the winter months, but becomes more frequent as the season advances, reaching a maximum in the month of September, the majority of all the cases occurring in August, September, and October.

Any differences between the susceptibility of individuals of different ages, and of the two sexes, depend, apparently, only upon the varying chances of exposure to infection. The relative susceptibility of the negro is by nearly two-thirds less than that of the white population.

We have distinguished three varieties of the malarial parasite:

1. The tertian parasite.
2. The quartan parasite.
3. The æstivo-autumnal parasite.

(1) The tertian parasite requires about forty-eight hours to accomplish its complete development, and is associated with relatively regular tertian paroxysms, lasting on an average between ten and twelve hours, associated almost always with the three classical stages—chills, fever, and sweating. Frequently infection with two groups of tertian organisms gives rise to quotidian paroxysms; rarely infection by multiple groups of organisms gives rise to more irregular subcontinuous fevers.

(2) The quartan parasite is an organism requiring about seventy-two hours for its complete development. It is rare in this climate, and is associated with a fever showing regular quartan paroxysms, similar in nature to those associated with the tertian organism. Infection with two groups of the parasite causes a double quartan fever (paroxysms on two days, intermission on the third). Infection with three groups of the parasite is associated with daily paroxysms.

(3) The æstivo-autumnal parasite passes through a cycle of development. the exact length of which has not as yet been determined; it probably varies very greatly from twenty-four hours or under to forty-eight hours or more, But few stages of the parasite are found, ordinarily, in the peripheral circulation, the main seat of the infection being, apparently, in the spleen, bone-marrow, and other internal organs. Infection with this organism is associated with fevers varying greatly in their manifestations. There may be quotidian or tertian intermittent fever, or, more commonly, more or less continuous fever, with irregular remissions. The individual paroxysms last, on an average, about twenty hours. The irregularities in temperature depend upon variations in the length of the cycle of development of the parasite, or upon infection with multiple groups of organisms.

We have not been able to separate two distinct varieties of the æstivo-autumnal parasites, though we feel that more investigation is needed on the subject. The cases of malaria in the spring and early summer are of the milder, more regularly, intermittent varieties (tertian and quartan fever), the severe æstivo-autumnal infections beginning to appear only in the later summer, and reaching their maximum in September.

The colored race, while showing a relative insusceptibility to malarial infection, is equally susceptible to the various forms. The infections which occur, however, are more apt to take a simpler, milder course—the single tertian cases, for instance, outnumbering the cases of double tertian fever.

The majority of all the cases of malarial infection in this climate depend upon the tertian parasite; these tertian infections form the vast majority of all the cases in the first half of the year, but occur throughout the malarial season. The majority of infections during the height of the malarial season depend, however, upon the æstivo-autumnal parasite.

The earliest cases of tertian infection are more commonly single in nature, while, as the season advances, double tertian infections become more common. Nothing in our experience has led us to believe that these varieties of parasites are interchangeable. They are, we believe, distinct varieties, though closely allied to one another biologically. Combined infections with parasites of different varieties may occur, but they are rare, forming less than 2 per cent. of all the cases which we have observed.

The crescentic bodies associated with the æstivo-autumnal parasite develop from the small hyaline forms. We have seen nothing to support the view of Mannaberg, that they are the result of conjugation. We have never seen sporulating forms which we believe to have developed from crescents. We are not as yet inclined to accept the view that these are degenerate forms; we believe that their true nature is still undetermined. The nature of the flagellate bodies which may develop in all types of malarial fever is not yet determined. The specific action of quinine upon these three varieties of the parasite is undoubted. It exerts its influence most strongly when the parasite is undergoing the process of segmentation, before the entrance of the fresh segments into new red corpuscles. It is best administered, then, just before the beginning of a paroxysm, if we wish to obtain the greatest effect with a single dose. The action is much more rapid and certain in the tertian and quartan fevers than in the æstivo-autumnal infections.

SURGERY.

UNDER THE CHARGE OF

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THE TREATMENT OF NEURITIS OF INFLAMMATORY TRAUMATIC ORIGIN BY FORCIBLE COMPRESSION.

DELORME (*Gaz. des Hôpitaux*, 1895, No. 1; *Cent. für Chir.*, 1895, No. 19) recommends, in cases of neuralgia that are due to a traumatism or wound and develop as ascending neuritis, a very simple procedure which he has found successful in the eight cases in which he has used it. The treatment consists in a very short, but very firm, compression of the part, and as an example of the method he gives the following as applied to a finger:

The patient either sits or lies down while the arm is firmly held. The affected finger is grasped by the surgeon between his two thumbs and index-fingers at the point where the scar is which produces the irritation, pressure

is then made with all the force the operator can bring to bear. He begins at the most sensitive point and goes gradually over the entire region. Each compression lasts only a few seconds; if the pain is not relieved, the compression is again applied after a few minutes. Usually one compression suffices; sometimes it must again be employed on the fourth or sixth day afterward. The finger is placed in a compressive cotton dressing for eight days. The trophic changes disappear usually with the pain. He reports the case of a man, twenty-two years old, who had a very painful keloid in a scar on the neck; it was removed seven times. After two compressions the pain disappeared and has remained away two years. Hysteria must always be excluded.

One Hundred Cases of Radical Cure of Hernia.

Delorme (*Arch. de Méd. et de Pharm. Militaires*, May, 1895) reports his second and third series of fifty each of operations for the radical cure of hernia; he had one hundred operative successes out of the one hundred cases, but reports two deaths, one nine days after operation and the other three days; both were due to disease of the lungs, and he thinks only one can be ascribed indirectly to the operation. The sac was ligated with boiled silk. The parietal incision was united by interrupted sutures about one-quarter of an inch apart, approximating the two edges of the wound for about three-eighths of an inch on either side, thus shortening the abdominal parietes by about three-quarters of an inch. Besides this suture the pillars of the external ring were stitched, using two or three sutures, leaving just sufficient room for the passage of the cord. Drainage was never employed, and the author is completely satisfied with that method.

The dressing included the abdominal region, the perineum, and the thighs. The patients were kept constipated for eight, ten, and twelve days, when the first dressing was removed. He has found that this constipation does no harm to the patients, there is no elevation of temperature, no gastro-intestinal disturbance, no decrease in appetite, and the first stool is easily produced by glycerin injections, their volume having been diminished by an animal diet.

The Treatment of the Diffuse Form of Septic Peritonitis occurring as a Result of Appendicitis.

McBurney reviews in the *Medical Record*, New York, 1895, vol. xlvii. No. 13, his experience in the treatment of diffuse septic peritonitis occurring in the course of appendicitis. The paper deals entirely with those cases in which there has been either no protecting wall or only an incomplete attempt to localize the infection. The cases in which the abscess is limited by a firm wall of adhesions, almost without exception, do well after operation. The diffuse form of peritonitis most commonly begins in the pelvis, probably on account of its dependent position, which allows any free fluid in the neighborhood of the appendix to gravitate into its cavity. When this occurs an inflammatory boundary of adhesions scarcely ever forms to limit the spread of the process. After a few hours the fluid overflows the pelvis, and the infection is distributed far and wide throughout the peritoneal cavity. Until very recently these cases have been considered hopeless. A larger experience,

however, and improved technique have resulted in a greater percentage of cures. The author reports twenty-four cases, of which fourteen recovered and ten died.

The use of the rubber drainage-tube in draining suppurating spaces in the peritoneum has been almost abandoned. If introduced at random among the intestines, it fails to accomplish its purpose, inasmuch as the end and lateral openings soon become occluded. For the purpose of draining the bottom of the pelvis a glass tube is the most satisfactory means. This should be supplemented with a strip of gauze within the tube. The best drainage in all parts of the body, the author asserts, is obtained by the use of dry absorbent material like gauze, and the more completely this material touches every point from which it is desirable to extract moisture the more perfect will be the drainage.

For irrigating the abdominal cavity hot sterile salt-solution, six parts to the thousand, is to be preferred. All chemicals which have a destructive effect upon the endothelium of the peritoneum should be avoided, inasmuch as the absorbing power of the peritoneum is thereby crippled. It is probable that no actively germicidal fluid can be introduced with safety into the peritoneal cavity, of sufficient strength to be of value in directly destroying the toxic products accompanying a septic peritonitis. What we may endeavor to accomplish is to remove completely the primary source of the sepsis, to wash away more or less thoroughly the secondary products, and to drain away the fluids left behind and those of post-operative formation.

In the cases reported the following technique has been employed. The incision has been large, from four to five inches long, and has been made as near to the anterior spine of the ilium and the outer part of Poupart's ligament as possible. After opening the peritoneum every effort has been made to remove at once with sponges all fluids in view. Then the appendix has been sought for, removed, and the stump cauterized. The character of the case has, of course, by this time been appreciated, and the fact noted that either no adhesions have existed, or that they were imperfect, or having existed that they have given away under the pressure of the fluid they restrained; in other words, that the abscess has ruptured into the general peritoneal cavity. Search has then been made for further collections of fluid, the pelvis being usually examined first, unless this has been clearly walled off by adhesions. Rarely has such wall been deliberately broken down, and only when tenderness at another point, or other sign, has led one to suspect secondary formations. In most of the cases the pelvis has been found more or less filled with a seropurulent, often offensive fluid. Where such collections exist the peritoneum on the intestines is always unnaturally injected. Then cautious search has been made in other directions for similar fluid accumulations. That is, a small sponge on a handle had been carefully pushed first in one direction and then in another, and closely examined for the presence of fluid. When all purulent or seropurulent products have been as thoroughly sponged away as possible, the washing process has begun, sterile salt-solution of the uniform strength of six-tenths of 1 per cent. being used as hot as can be comfortably borne by the hand of the operator.

The irrigation of the peritoneum is performed by pouring from a pitcher or glass flask enough of the solution to fill the pelvis. This is sponged out

rapidly and a fresh supply poured in, and so on, until the fluid returns perfectly clear. After the pelvis is sponged dry a long glass drainage-tube is passed to its very bottom, a piece of gauze to facilitate drainage passing through the tube from end to end, a single strip of iodoform gauze is passed close beside the tube to the bottom of the pelvis. If the loin has been suspected and washed, iodoform gauze is passed upward outside of the colon as far as the kidney. If the general cavity toward the median line, or beyond, has been involved, the packing is introduced in strips from three to six inches beyond the wound in various directions among the intestines; finally the wound surrounding the stump of the appendix is packed with gauze, no suturing of any kind being employed. In the after-treatment stimulating enemata containing whiskey or brandy are employed until the stomach is able to bear fluid nourishment. The glass tube is cleansed as often as necessary, depending upon the amount of fluid which collects, and is usually removed at the end of twenty-four and thirty-six hours, a single strip of iodoform gauze taking its place. The dressings are changed as often as the condition indicates.

On the Surgical Treatment of Perityphlitis.

Under the above title, Hænel, of Dresden, publishes a contribution in the *Münchener medicinische Wochenschrift*, 1895, Nos. 13 and 14. The author includes the various inflammations occurring in the right iliac fossa, which in this country are usually described as appendicitis. Twenty-one cases are reported, of which eleven were observed for a more or less extended period. In seven instances an operation was performed for the evacuation of acute abscesses; in three cases the appendix was removed, and in one an abscess was opened on the left side also. The works of Sahli and Sonnenburg are referred to, which show that most cases of typhlitis and perityphlitis originate in disease of the appendix. Of one hundred cases of death from disease in the right iliac fossa observed, post-mortem, in the Münchener Pathological Institute, ninety-one resulted from appendicitis, and nine from perforation of the cæcum.

Sonnenburg divides appendicitis into the catarrhal and ulcerative or perforative varieties. In the event of the formation of an abscess the pus may gravitate to the lumbar region, or pass downward along the psoas muscle below Poupart's ligament, and reach the surface; or above, along the ascending colon, and form a subphrenic abscess. In one of the author's cases the pus passed behind the parietal peritoneum to the left side of the abdomen; it may also descend along the rectum.

The chief indications for operation, the author says, are the presence of pus, peritonitis from perforation, and recurrent attacks. The presence of pus, which, of course, demands operation, is not always easy of recognition. Neither the pulse, nor the temperature, nor the local swelling, presents in every case diagnostic evidence.

A comparison is drawn between the medical and surgical treatment of the affection, and while it is admitted that the great majority of the cases recover from the attack, it is stated that many of these suffer recurrence of the disease. It is as logical, therefore, to say that a patient has been cured by

removing a cancerous breast because she leaves the hospital, as to say a person is cured of appendicitis because the attack is survived.

The Surgical Treatment of Epilepsy, with Particular Reference to Excision of the Cerebral Cortex in Idiopathic Epilepsy.

Eulenburg reports (*Berliner klinische Wochenschrift*, 1895, No. 15) a case of idiopathic epilepsy relieved by excision of a portion of the motor cortex, and comments on the surgical treatment of epilepsy. The results of operation for epilepsy have not been, as a rule, very satisfactory.

The operative procedures that have been employed in epilepsy may be divided into two classes: the removal of foci of irritation in distant organs, and direct attack upon the seat of the functional disturbance in the brain.

In the latter group Sachs prefers simple trephining, and doubts the advisability of interfering with the brain. On the other hand, the author thinks it remarkable that so few cortex excisions have been performed. He considers the operation entirely rational. The cases best suited to the application of this method are those in which no definite pathological condition exists, but a purely functional alteration of the cortex is present.

A case of very severe, genuine idiopathic epilepsy is described, occurring in a man twenty-eight years of age. The attacks began when the patient was eleven years old, and were at first clearly localized to a small area of the cortex, involving the arm-centre on the left side of the brain. The operation consisted in locating this portion of the brain with Reid-Köhler's cranio-encephalometer, and removing the corresponding portion of skull with a chisel and mallet. The dura was opened, and the centre for the right arm located by means of a battery, and excised. The portion of bone removed was replaced. The patient could move the right arm the same night, but the next day it was paralyzed, as was the corresponding side of the face. Speech was also affected. Ten days later the arm could be moved freely, the face was nearly normal and the speech improved. There was some necrosis of the internal table, which made the healing very slow. This may have been a factor in the favorable result. There was no attack for seven months, but at the end of this time the epileptic attacks began to recur.

Histological Study on Bone-implantation.

Barth gives the results of his study of the implantation of bone (*Ziegler's Beiträge zur pathologischen Anatomie*, Bd. xvii.). The first portion of the work deals with the implantation of living bone, and the second portion with dead bone.

In regard to the implantation of living bone, the author says that the apparent vitality of the fragments is frequently only apparent. In reality they often undergo anæmia-necrosis, and are substituted by new bone-tissue. This may not be apparent to the naked eye, but the microscope shows it to be the case. The same is true in cases of fractures.

Dead bone seems to answer the same purpose as the living if it fills the defect properly, the formation of bone in each case taking place throughout the implanted portions of bone. With decalcified bone the case is different; the deposition of bone takes place only on the surfaces of the fragments.

Bone in which the animal matter has been destroyed by heat answers the same purpose. The beneficial influence seems to depend upon the presence of the calcium salts.

The author states that calcined bone placed in the soft parts, or even in the abdominal cavity, is followed by bone-formation.

The Radical Treatment of Inguinal Hernia in Childhood.

Bittner (*Archiv für klin. Chir.*, 1895, Band xlix. Heft 4) believes that there are many cases of hernia which are not curable by the application of a truss, and that the cure in many cases may have been brought about by preventing the further distention of the sac and its growth with the development of the individual. He believes operation preferable since (1) there are those which require the constant wearing of a truss; (2) there are herniæ which cannot be held up by a truss on account of the size of the external ring; (3) there are occasionally severe complications following the use of a truss in these cases; (4) trusses are to be avoided if possible, since their effect on the social and mental condition of the patient is frequently great; (5) in all cases of operation for strangulated hernia the radical operation should be done. The operation is very well borne by children, recovery taking place on the average in ten days. The author reports 34 cases with 38 herniæ, with one relapse and one death in a child that was found to be markedly tubercular. The operation was simple suture of the canal.

The Treatment of Tuberculosis of the Joints.

Rydygier in a monograph (Wien, 1895) of sixty-four pages on this subject discusses the various methods employed in treating tuberculosis of the articulations, especially as seen in the six larger joints. The author holds a conservative position in regard to joint-tuberculosis. He draws the following conclusions as a result of his study:

1. Conservative orthopedic treatment is not to be considered as in competition with operative measures, but one supplements the other.

2. The particular method to be employed in a given case depends upon different circumstances: the means of the patient, the age and general condition, the local findings, and the joint affected.

3. The better the conservative orthopedic measures employed, the fewer will be the operations required.

4. If the joint contains pus in spite of conservative treatment, and if there is a tendency to further destruction of the joint, operation is needed.

5. The best method of conservative treatment is that which allows the patient to exercise in the fresh air, without irritating the joint.

6. The best operative procedure is that which permits a free and complete entrance into the joint, so as to be able to remove accurately all diseased tissue without undue regard for the future function of the joint. In some cases it is desirable to excise completely to secure anchylosis.

7. In the after-treatment of resected joints the patient should be got about as soon as possible.

8. Operation too long postponed is not to the advantage of the patient,

but if done too early may make the patient a cripple. The proper selection of cases should be made on an anatomico-pathological basis.

9. The general treatment should not be neglected, especially sea and other corresponding baths.

In treating tuberculosis of the hip-joint the author advises very prolonged orthopedic treatment and iodoform locally. It is desirable for the patient to walk about with an apparatus as soon as possible. The presence of pus and progressive destruction of the joint require operative interference. This may occur, the author says, in the most carefully treated cases.

In the case of dry caries of the shoulder, Rydygier advises early resection, as it shortens the course of the treatment and gives a better functional result. He is also inclined to early excision with removal of the carpus when the disease attacks the wrist-joint.

Regarding incisions, the author prefers the transverse incision for the ankle-joint with suture of the tendons, and the bayonet-incision of Ollier for the elbow.

The Mortality of 2658 Cases of Diphtheria.

In studying the cases treated during the past ten years in the surgical clinic of Berlin University, Hirsch (*Archiv für klin. Chir.*, 1895, Band xlix. Heft 4) found that there was a mortality of 1396 cases, or 52.5 per cent., in 2658 cases. He found also that the greater frequency was in the months of October, while the least was in June, and in general the winter months were the most fatal. The mortality is greater the younger the patient, so that the younger the patient the worse is the prognosis. The mortality in cases in which tracheotomy was deemed necessary—*i. e.*, where asphyxia was threatened by laryngeal stenosis—was 68.7 per cent.; in cases not operated upon, 26 per cent. The statistics show that of 407 cases in children under two years, in whom operation was necessary, twenty-five recovered—that is, twenty-five patients were saved by tracheotomy from an otherwise certain death. The prognosis is bad in cases complicated by nephritis, and only slightly better in those complicated by scarlet fever. The statistics also show that the earlier the child was seen the better was the prognosis.

Tracheotomy in Deux Temps in a Case of Difficult Décanulement.

Lehamann (*Archiv für klin. Chir.*, 1895, Band xlix. Heft 4) details a difficult and interesting case of diphtheria in which décanulement was very difficult. The second tracheotomy was done in two stages; that is, the skin and soft parts were divided down to the trachea, the bleeding stopped, and the wound allowed to granulate before the trachea was opened and the tube inserted; infection of the wound was prevented by this means and healthy granulation surfaces secured that united more rapidly after the tracheal tube was removed. O'Dwyer's tubes were inserted under chloroform in the stenosed larynx, while a tracheal tube, which was cut so that it extended just through the wound, was allowed to remain in until the O'Dwyer tube was retained easily, and assisted greatly in producing the accommodation of the tube in the larynx.

The Infections of Bone, Periosteum, Joints, and Fascias by the Poison of Influenza.

A very interesting and timely observation has been made by Franke (*Archiv für klin. Chir.*, 1895, Band xlix. Heft 3) concerning the forms of osteitis, periostitis, and inflammations of the plantar fascia and joints that accompany or follow attacks of influenza. He reports in detail twenty cases of very great interest. The disease manifests itself in the fascias, principally in the plantar fascia, which becomes thickened and sensitive to pressure, and renders standing and walking painful, while it is relieved on lying down. Another manifestation, the author believes, is seen in the condition described by Albert as "Achillodynie," where the insertion of the tendo Achillis becomes the seat of a periostitis without any definite history of injury or traumatism. The inflammation is most frequently seen in the bone and periosteum, where it may either produce simple œdema and swelling, or may go on to suppuration without resolution taking place. The involvement of fascias is next in frequency of occurrence, while instances of a pure arthritis of this description are very rare. The disease may manifest itself three or four days after an attack of influenza, or it may not appear for weeks after the attack. It is more liable to be found after a second attack or in patients who have been the subjects of a series of attacks. The stubbornness with which the disease resists all methods of treatment should lead one to suspect its etiology, and a history of previous attacks of influenza or indications of a concurrent attack should confirm the diagnosis. The best treatment is moisture, with warmth, followed by massage, with appropriate treatment in case of suppuration.

The Cure of Cancer by Serum Therapy.

Emmerich and Scholl (*Deut. med. Woch.*, April 25, 1895) in following up the discovery of various well-known authors, that erysipelas has a direct influence upon cancer when it arises concurrently with it, have demonstrated that anthrax can be cured by the use of a serum derived from animals infected artificially with erysipelas. This fact and the conclusion to be drawn from it, that the bacillus of anthrax was destroyed by some property of the serum within the blood of the patient, lead them to believe that the cure of cancer by erysipelas is to be attributed to a like cause, and that serum from infected animals would produce the desired result as well as the filtrate from virulent bouillon culture of erysipelas cocci, as used by Coley, and without the dangerous symptoms which accompany that method of treatment. In their experiments and clinical research they therefore employed a serum derived from sheep infected with erysipelas; this was drawn with aseptic precautions, filtered through the Chamberland or Arsonval bacterial filter, and the serum preserved aseptically in a darkened chamber till used. They obtained lasting results, whose clinical history they detail except in two cases, one of secondary infection and the other in which suppuration was going on, and in both of which the disease had progressed too far.

In their clinical research they found that the age of the cancer had more effect than the kind upon the result, but they believe they have found a

specific for the disease and probably also for sarcoma. The dose varied with the size of the tumor and other conditions, especially the condition and age of the patient. Small tumors required fifteen minims to one drachm daily. Sometimes two drachms and even an ounce was injected at different points into the tumor. Small doses produced no pain of moment, while repeated injections produced pain that lasted only a short time. Large amounts injected into hard tumors caused somewhat greater pain, but it lasted only a few hours. Fever was absent except when large amounts were employed, and then was of moderate degree and short duration. There was no interference with digestion or appetite, nor was headache complained of by the patients. The injection produced a local aseptic erysipelas with slight redness and local œdema.

OPHTHALMOLOGY.

UNDER THE CHARGE OF

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INFLAMMATION OF THE RETINA FROM HEREDITARY SYPHILIS.

J. HIRSCHBERG (Berlin) calls attention to the practical importance of this form of retinitis (*Deutsche med. Wochenschr.*, 1895, No. 26). Careful examination shows it occurs about once in one thousand patients with eye disease, corneal inflammation from the same cause occurring in about six of a thousand of such patients. It frequently occurs with the corneal disease. He has observed it early in one-seventh of his corneal cases in the first year of life. He urges the need of a careful ophthalmoscopic examination in these cases.

Various forms of fundus-change are produced. More frequently than one should suppose from the literature, the periphery of the fundus is studded with light rose-colored and later whitish specks. Frequently one observes parti-colored or dark specks in the retina; not so important when they lie in the periphery, or at least not exactly at the fovea. In other cases the periphery is paved with light (atrophic) spots, the pigmentation of these spots being slight. Not rarely is encountered the picture of the so-called areolar retinitis, the round, light, pigment-margined spots strewn over the eye-ground. In many cases the spots are of the various characters referred to; the various types are mixed.

An important fact, hitherto mostly overlooked, is that the development of the pigment-changes in the eye-ground may continue for years after the cure of the corneal inflammation. When the region of the macula is involved in

these changes they exert an important influence on the acuteness of vision, and treatment then has only slight effect.

As to treatment, Hirschberg says the remedy is mercury; and he lays down this axiom: "Is the disease stubborn? so must be the surgeon." He orders inunctions of blue ointment 0.5 to 1 gramme daily, and exceptionally, where a speedy action is necessary, twice a day. These are given for five days; then a bath and an interval of three to five days; then repeat. From 100 to 300 inunctions are given, and the after-treatment continued for one to two years.

Asthenopia from Pressure of the Lids on the Cornea.

George J. Bull (Paris) in an elaborate paper on the effects of lid-pressure on the cornea (*Trans. Eighth Internat. Ophthalm. Congress*) calls attention to what may be termed "tarsal asthenopia." He points out that pressure of the lid-margins upon the surface of the cornea causes sufficient disturbance of the corneal surface to give rise to a very noticeable irregularity of the refraction of the eye. This may be demonstrated by looking at a point of light through a strong convex lens held far enough from the eye—nearly its focal distance—to form on the retina a large circle of diffusion. Across this circle of diffusion certain dark and light bands mark where the lid-pressure has been exerted. These bands are of two kinds, viz.: First, those produced very quickly and by slight pressure, and entirely effaced by winking; second, bands produced by more prolonged and severe pressure, which gradually fade away while the eye is held open, but which reappear or become more noticeable after winking.

The first he thinks are due simply to the displacement by the lid-margin of the viscous fluid coating the surface of the cornea. The second he believes are due to a disturbance of the curvature of the epithelial surface of the cornea itself; while the fading away comes from the filling of the inequalities with the viscous fluid, and the reappearance with winking by the wiping away of this fluid. When one eye was closed and the other kept directed forward for a minute or two the disturbance caused by the pressure of the margins of the closed lids was sufficient to cause the doubling of horizontal lines when the eye was again opened. Such a disturbance might readily arise in the eye of a person working with a monocular optical instrument, such as the microscope or telescope, until he learned to avoid it by keeping open the eye not in use. By firm pressure of the lid-surface on the cornea a network of markings similar in nature may be produced.

Bull believes that the disturbances of the corneal surface by lid-pressure may become a source of trouble, as in artists who practise the constriction of the lids known as *clignement*, or after prolonged use of the eyes in a constrained position, as looking down when reading in bed, which brings the margin of the upper lid where it will press on the cornea in front of the pupil. Such disturbances, he thinks, will be aggravated by anything causing dryness of the epithelial surface of the cornea. In some cases the wearing of correcting-glasses until the habit of lid-constriction, arising from ametropia, is broken up, will be followed by permanent relief, even though the correcting-glasses are subsequently not worn constantly or altogether discarded.

Antiseptic Precautions in Cataract Extraction.

J. B. Story employs the following (*Dublin Journal of Medical Sciences*, July, 1895): The eye to be operated on is kept bandaged with boric acid lotion-dressing for twenty-four hours before operating, and the operation is not performed so long as any mucus is present on the dressings. All the instruments are kept five minutes in boiling water, with the exception of the knives, which are sterilized by rubbing with a mixture of equal parts of ether and absolute alcohol. The collyria employed are made up with boiled boric acid solution, or with 1 : 5000 corrosive sublimate solution. The dressings are made with absorbent wool soaked in boiling boric acid solution. At the time of operation the patient's face, eyebrows, and lids are washed with creolin, and boiled boric acid lotion is used to wash out the conjunctival sac, both before and during the operation.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

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OF PHILADELPHIA.

Pilocarpin in Diphtheria.

Dr. Louis Waldstein, of New York, has published (*Berliner klin. Wochenschrift*, No. 17, 1895) his observations upon leucocytes and their reactions to pilocarpin in diphtheria, streptococcic sore-throat, derangements of the lymphatic glands, tuberculosis, and lupus. Diphtheria presented the doctor with rich material for his investigations; and he examined the leucocytes at the height of the disease, both before and after the injections of Behring's serum. He found that before the injection of the serum, and during the entire period of the height of the disease, the multinuclear cells were more or less increased in number, sometimes fivefold, while the lymphocytes were as largely diminished; for example, 20,000 : 400. As soon, however, as improvement began this relation suddenly altered, the multinuclear cells falling to the normal proportion, and the uninuclear ones increasing, so that, if graphically represented, the two curves cut each the other.

If the case continued favorable, the relation remained the same with very slight deviations. Cases which did not improve exhibited, after the injection, an increase of the lymphocytes without any diminution in the multinuclear cells. This latter condition was in every case an unfavorable prognostic feature. Either the patient died, or the disease took a more or less chronic course with disease of the lymph-glands, or with ear-complications, or with other sequelæ. The contrary relation of the number of leucocytes showed no regular correspondence with the course of the fever or the character of the pulse, and did not appear to have any causal connection with the visible exudates. The only characteristic was the general condition; the children usually lay apathetic, and in many cases had to be nourished artificially.

In the post-mortem examinations of diphtheritic children Waldstein always found swelling of Peyer's patches and of the glands of the mesentery, and, not infrequently, acute disseminated miliary tuberculosis.

These reactions of the leucocytes to the disease led Dr. Waldstein to the use of pilocarpin for the purpose of artificially exciting the increase of the lymphocytes in the blood. The few investigations he has thus far been able to make appear to justify the continuance of its use, with a fair prospect of demonstrating its efficacy. He found that the hypodermic injection of pilocarpin in doses of from one to five milligrammes proved of great benefit in cases associated with streptococcic angina, the class of cases in which the serum so frequently fails by its want of action upon the cocci. In one case of pure bacillar diphtheria the pilocarpin had no influence and the serum had to be employed.

For various details in this connection, and in that of the action of pilocarpin on tuberculosis and lupus, the reader must be referred to the original article.

Diphtheria.

Dr. Solomon Solis-Cohen (*Philadelphia Polyclinic*, 1895, No. 7) reports a series of cases in the Philadelphia Institution for Feeble-minded Children, at Elwyn, Pa., in which, under his advice, guaiacol was successfully used, topically, as a prophylactic against diphtheria. The throats were painted twice a week with a 50 per cent. solution absorbed upon a small wad of cotton wrapped on a probe.

Fibrino-rhinitis.

Dr. D. Braden Kyle, of Philadelphia, reports (*N. Y. Med. Journal*, July 6, 1895) two cases of laminated fibrinoplastic rhinitis, with the results of the laboratory investigation; and discusses, generally, the subject of fibrinoplastic exudates. In fifty-seven cases collated, fifteen showed the bacillus of diphtheria present in either a virulent or attenuated form. Bacilli were not found in eight cases; bacteriological examination was not made in six cases; and the diagnosis was based entirely on clinical data in the remaining twenty-eight; so that really but twenty-three can be critically utilized, of which eight, or a little more than one-third, revealed no diphtheria bacilli.

Intubation of the Larynx.

Dr. F. Egidi, of Rome, has devised (*Supplemento al Policlinico*, 1895, No. 35) a new apparatus for introducing and withdrawing the tube which provides, by a perforation through one of the branches, for a continuance of respiration during the manipulations. Illustrations accompany the article.

Œsophagism.

M. E. Thiercelin (*France Méd.*, May 17, 1895) reports that in attempting lavage of the stomach on a nervous woman forty-three years of age, the rubber tube provoked tetanic contractions of the œsophagus so energetic as to prevent, for several minutes, the withdrawal of the tube. The same

occurred on a second occasion, but less violently, and since that time the tube had been introduced without any reproduction of the spasm.

Laryngeal Paralysis.

Dr. G. Hunter Mackenzie reports (*Journal of Laryngology, Rhinology, and Otology*, 1895, No. 4) an interesting case of paralysis of the left vocal band in the cadaveric position, in the person of a type-founder sixty years of age, with evidences of old pleurisy at the right apex, and who had suffered from transitory melancholia five years previously. Within a short time symptoms of cerebral disease developed, from which the patient died within four months of the appearance of the laryngeal symptoms. Some fifteen or sixteen small tumors were found in the cerebrum which, on examination, proved to be malignant papillomas, yet there was no evidence of any direct implication of pressure upon the pneumogastric or spinal accessory nerve, the nuclei of which appeared perfectly normal. There was no peripheral pressure found upon either of these nerves, at the apex of the lung, or elsewhere, and the muscles of the affected side of the larynx showed no difference from those of the other side. The cause of the paralysis has, therefore, been undetected.

The Surgical Treatment of Suppuration of the Accessory Cavities of the Nose.

At the seventh annual meeting of the British Laryngological, Rhinological, and Otological Association, held in London, July 25 and 26, 1895 (*New York Medical Journal*, August 24, 1895), this subject was opened by Dr. John N. Mackenzie, of Baltimore, who expressed himself in accord with Freeman, of Philadelphia, who opens below the nasal duct. He did not approve of intranasal operations which required the removal of the inferior turbinate.

Dr. Luc, of Paris, discussed his operation for frontal empyema. It consists in exposing the anterior wall of the frontal sinus at the union of the eyebrow with the bridge of the nose, in curetting away the granulations contained in the cavity, and in destroying the greater part of the floor of the sinus with a chisel, in order to create a large communication between the sinus and the nasal passage. A curved probe is then introduced from the wound into the nose until it appears at the nostril, when a large rubber drain is fixed to its end and drawn from below upward into the sinus, where it is deeply lodged. The wound is then sutured, and antiseptic injections are made through the drain as required. The drain can be removed in a fortnight in acute cases, and after a month in chronic cases complicated with fungosities.

Dr. D. Bryson Delavan, of New York, confined his remarks to ethmoidal disease, and urged the necessity of conservatism in operative treatment, which should be based upon indications suggested by the anatomical and pathological conditions present. It should consist in thorough drainage, persistent cleansing of the several cavities of the sinus, persistent cleansing and disinfection of its interior, and the removal of offending tissues, which

he performed with a series of fine and variously curved curettes, which he showed to the meeting.

Dr. F. H. Bosworth, of New York, dwelt on the more frequent implication of the ethmoid cells. He uses an electromotor and a burr three-sixteenths of an inch in diameter in these cases, taking several sittings, up to fifteen, to destroy all partitions, and had observed no ill effects.

Dr. Mayo Gullier described his operation for empyema of the frontal sinus. The incision was vertical and in the middle line, to enable him to explore both cavities.

The subject was further discussed by Dr. Daly, of Pittsburg; Dr. Dundas Grant, of London; Dr. Collier, of London; and Dr. Krause, of Berlin.

Laryngeal Stenoses of the Larynx.

In a paper on this subject, Dr. Charles E. Sajous, of Paris, formerly of Philadelphia, at the seventh annual meeting of the British Laryngological, Rhinological, and Otological Association, held in London, July 25 and 26, 1895 (*New York Medical Journal*, August 24, 1895), said that the infraglottic space had not received the attention its importance warranted as an inherent portion of the larynx. He cautioned against the administration of potassium iodide in cases of infracatarrhal stenosis, and insisted that preliminary tracheotomy should be performed before the administration of the drug in cases of advanced infraglottic stenosis.

Dr. Sajous then read a paper sent by Dr. Massei, of Naples, who emphasized the necessity of differentiating infraglottic stenosis. The hypoglottic tract was the most frequent seat of syphilis, tuberculosis, morbid growths, rhinoscleroma, and also foreign bodies.

The Surgical Treatment of Laryngeal Tuberculosis.

At the recent meeting of the British Laryngological, Rhinological, and Otological Association, held in London, July 25 and 26 (*New York Medical Journal*, August 24, 1895), Dr. Krause, of Berlin, read a paper in which he said that surgical treatment was necessary in all cases where tubercular ulcerations were complicated with advanced infiltration or granulation. Simple ulcers, or such as are surrounded with slight infiltration only, were best treated with lactic acid. High fever and debility formed no absolute contraindication to operative treatment, which sometimes even removed dyspnœa or dysphagia. The laryngeal lesions were sometimes cured entirely, and there was no relapse even while the pulmonary processes advanced to a fatal issue.

Dr. Gleitsmann, of New York, urged the necessity of the proper selection of cases for this treatment, which he believed improved the laryngeal lesion, and thereby increased the chances of cure of the pulmonary disease. It was certainly the surest and quickest way of curing dysphagia, and thus favored improvement in nutrition.

Dr. Heryng, of Warsaw, said that tubercle of the larynx might heal spontaneously, chiefly in cases of ulceration of the vocal cords and the posterior wall; very rarely in more serious cases. The chief indications in

general treatment were hygienic, dietetic, and climatic. The most important indications were the removal of dysphagia and the relief of dyspnœa and aphonia. The cure of deep ulcers was best effected by surgical means. He dwelt upon the indications for surgical treatment, which, however, were not detailed in the report from which this record has been made.

Thyroid Extract in Myxœdema.

At the recent meeting of the American Laryngological Association (*New York Medical Journal*, August 24, 1895), Dr. Shurly, of Detroit, related a case in which, some fifteen years ago, Dr. McGraw had extirpated the whole thyroid gland in a case of goitre occurring in a boy sixteen years of age. This operation seemed to relieve the boy for about three years, and while he did not grow in stature, he had seemed to develop in other directions. Three or four years later Dr. Shurly had seen the boy again, having been asked to examine his larynx to account for the character of his voice, which had been very piping. The movement of the vocal cords and arytenoids was normal, but the tension was defective. From this time the boy had gradually developed into a state of myxœdema, and his mental faculties had not developed to any extent. Three years ago some thyroid extract had been injected into his neck, but without special benefit. Since that time he had been taking the thyroid extract quite continuously. In February last examination of the larynx showed the tension of the vocal cords to be much better. The boy's mental faculties were somewhat better, although the mind acted very sluggishly.

The case was of interest inasmuch as it pointed directly to the extirpation of the thyroid gland, and confirmed the experiments that had been made on the lower animals. Dr. Shurly thought the profession should use its influence against extirpation of the whole of the thyroid gland in the light of our present knowledge.

OBSTETRICS.

UNDER THE CHARGE OF

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The Practical Value of Various Methods to Determine the Indications for Induction of Labor.

Ahlfeld (*Monatsschrift für Geburtshülfe und Gynäkologie*, Band i. Heft 6) discusses the value of Müller's method for determining the indications for induction of labor, by pressing the head of the child into the pelvic brim. While

this method has advantages, it is not to be relied upon solely. Ahlfeld prefers to estimate carefully the period of gestation, measure the length of the fœtal body within the womb, to compute the length and weight of the fœtus, and to combine these data with those given by palpation. It is also to be remembered that a fœtal head which cannot be pressed downward into the pelvis can be brought through after version, the breech preceding.

THE USE OF FORCEPS AS PRACTISED IN THE PRAGUE OBSTETRIC CLINIC.

SHICK (*Monatsschrift für Geburtshülfe und Gynäkologie*, Band i. Heft 6) gives the results of the use of forceps in 2920 labors. Birth was completed by forceps in 3.63 per cent. of cases. The majority of the cases were primiparal, between twenty and thirty years old. In 60 per cent. of cases the mother was lacerated. The maternal mortality was 4.7 per cent., while 11.32 per cent. of children perished. Of the mothers, 1.8 per cent. had septic infection. The conclusion reached from comparing the use of forceps with other methods of delivery is that the forceps is the bloodiest method of delivery, and that its mortality-rate renders it a serious procedure for mother and child. Other means of accomplishing delivery should be exhausted before recourse is had to the forceps.

THE CONDUCT OF NORMAL LABOR BY EXTERNAL EXAMINATION ONLY.

LEOPOLD and ORB (*Archiv für Gynäkologie*, Band xlix. Heft 2) report the results of the conduct of normal labor by external examination only in 1000 cases. Errors in diagnosis occurred in 65 (6.5 per cent.). Fifty-four of these were in occipital presentation, 2 in brow, 2 in breech, 1 in twin gestation; while in 6 cases of face-presentation an error was made in diagnosticating the entire number. In 168 cases contracted pelvis was diagnosticated. The writers show by statistical comparison of series of cases that palpation may be relied upon to determine a most important point—namely, the presence or absence of descent of the fœtus into the pelvis.

THE VAGINAL SECRETION OF NEWBORN INFANTS.

In the *Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxii. Heft 3, VAHLE gives the results of his examination of the vaginal secretion of newborn infants to determine the presence or absence of bacteria. He finds that for twelve hours after birth the vulva and vagina are sterile. From this time until the third day germs are occasionally found, and after the third day they are present in most cases. In 4 per cent. of cases staphylococci were discovered, while in 14.6 per cent. streptococci were isolated.

INTRAUTERINE INFECTION WITH TYPHOID.

FREUND and LEVY (*Berliner klinische Wochenschrift*, 1895, No. 25) report the case of a multigravida who was admitted to the hospital in the eighth day of typhoid, being five months pregnant. She progressed favorably until the fourth week, the temperature being but slightly elevated. Without apparent cause she expelled a living fœtus, which soon perished. Her temperature

rose during labor, but fell immediately afterward. The fœtus and placenta were received in sterile glass vessels, and an examination made of the spleen, blood of the heart, and placenta twenty minutes after birth. No gross lesions were found. Typhoid bacilli developed, however, after incubation. An old endometritis was present in the mother, who speedily recovered.

The case is a remarkable demonstration of the direct passage of infection from mother to child, without anatomical lesions.

A Case of Long Retention of an Ovum in the Uterus.

Orloff reports in the *Prager medicinische Wochenschrift*, 1895, No. 22, an interesting case from the obstetrical clinic at St. Petersburg. The patient had borne ten children and came to the clinic with a history of icterus and vomiting of blood. There was also enlargement of the abdomen, and puncture was made to relieve the pressure-symptoms. A diagnosis was made of cirrhosis of the liver, with intestinal hemorrhage. The patient shortly afterward died, and upon post-mortem examination an impregnated ovum was found lying in the right horn of the uterus. The ovum had ruptured, and only the chorial sac remained. So far as the history and appearance of the tissues indicated the ovum had remained for more than a year within the uterus.

The Choice of Cæsarean Section, Symphysiotomy, and Induction of Labor.

Tarnier, in *La Presse Médicale*, July 20, 1895, describes in a clinical lecture a case of symphysiotomy in which the antero-posterior diameter of the pelvis was less than 8 cm.

He reviews the results obtained by induced labor, and finds that in pelves whose antero-posterior diameter ranges from $6\frac{8}{10}$ cm. to $8\frac{8}{10}$ cm., in thirty cases, he had no maternal mortality, but 40 per cent. infantile death-rate. In forty-nine cases in which the same diameter measured from $8\frac{8}{10}$ to $9\frac{8}{10}$ cm. there was no maternal mortality, with $20\frac{29}{100}$ per cent. infantile mortality. In his third series of seventeen cases in pelves whose antero-posterior diameter measured from $9\frac{8}{10}$ to 11 cm. he had no maternal mortality, but an infantile death-rate of $29\frac{41}{100}$ per cent. He calls attention to the fact that the mortality-rate of children is less in the middle range of pelvic contraction, because pregnancy is interrupted in these cases after the end of the eighth month, at a time when the fœtus is well developed. The high mortality among children in the third series of larger pelves occurs because these patients call aid too late, when the child has become too large to pass favorably through the pelvis.

In comparing the results of induced labor and symphysiotomy one finds that in classes of cases in which interference is practised most often, namely, in those in which the antero-posterior diameter of the pelvis is between $8\frac{8}{10}$ and $9\frac{8}{10}$ cm., that the total mortality-rate of mothers and children in 200 cases was $20\frac{29}{100}$ per cent., while the best statistics of symphysiotomy give a mortality-rate of mothers and children of 33 for 200 cases.

Pinard's statistics give a total of $18\frac{36}{100}$ per cent. mortality-rate for 200 cases after symphysiotomy. The difference, however, between the results of

induced labor and those of symphysiotomy does not serve strongly to recommend the latter operation.

Tarnier believes that induced labor will be the operation chosen in pelves whose antero-posterior diameter is more than 8 cm., and that symphysiotomy should be selected in appropriate cases with an antero-posterior diameter less than 8 cm. If the statistics for induced labor are taken for cases divided into two classes in this way, it is found that in pelves above 8 cm. there was no maternal mortality, and an infantile death-rate of $24\frac{77}{100}$ per cent.

In pelves below 8 cm., with no maternal death-rate, the infantile mortality was $57\frac{14}{100}$ per cent.

A Fœtus with Absence of Urethra and Ascites Obstructing Delivery.

In the *Transactions of the Obstetrical Society of London*, 1895, vol. xxxvii. No. 1, Stevens reports the case of a male fœtus of about seven months, delivered by embryotomy. The forceps was applied to the head, but as the fœtus was macerated the neck was broken by the traction employed. It was found that the body completely filled up the pelvis; the thorax was opened with scissors and the diaphragm was cut through, when 3½ pints of fluid, clear and straw colored, escaped. On examining the body the urethra was found to be absent; while the bulk of the fluid was ascitic, some was pleuritic and pericardial. There was general œdema.

GYNECOLOGY.

UNDER THE CHARGE OF

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Regeneration of the Endometrium after Curettage.

Werth (*Archiv für Gynäkologie*, Band xlix. Heft 3) has made by far the most scientific contribution on this subject which has yet appeared, based as it is upon extended microscopical studies. His practical deductions are of corresponding value. He calls attention to the fact that the mechanical results of curettage vary widely according to the manner in which the operation is performed. The surface is naturally scraped unevenly, portions of the mucosa being left intact at some points, while at others the subjacent muscular tissue is removed. The most thorough results seem to be obtained when both the curette and the sharp spoon are used, especially the smallest-sized instruments, which can be inserted into the cornua of the uterus and between the rugæ. The writer does not attribute so much importance as others to the unfavorable influence of little islands of intact mucosa upon the regeneration of the new endometrium, since he has found that they are quickly surrounded by the new epithelium and even seem to lose their abnormal character.

The question of recurrence of the diseased condition after curettage is of primary importance. Where there is marked glandular hyperplasia, the glands dipping down into the muscularis, early recurrence is apt to follow the most vigorous scraping, unless the raw surface is thoroughly cauterized at once. But, since these cases cannot be distinguished clinically from others, it is safer to cauterize in every instance. In every instance in which liquor ferri was applied after curettage, an examination of the specimens showed that the regeneration of the epithelium was delayed. Moreover, when islands of diseased mucosa are left the application has the effect of destroying them.

Attention is called to the fact that there is no analogy between the regeneration of the endometrium after curettage and the physiological process which follows menstruation.

Vesicular Moles in their Relation to Malignant Decidual Neoplasms.

Fraenkel (*Ibid.*) concludes that a considerable proportion of the malignant growths which develop from the chorionic villi and decidua were originally retained vesicular moles. In sections of the latter commonly one finds outgrowths of the syncytium and the subjacent cellular layer of the chorionic villi, which are histologically similar to the elements found in the malignant neoplasms before mentioned. It is highly probable that the latter originate from such outgrowths in the remains of vesicular moles. The practical deduction is that moles are less innocent than has heretofore been supposed, and that not only should they be carefully examined in every case, but the patients should be kept under observation after their removal.

Disinfection of the Hands.

Reinieke (*Ibid.*) after a series of elaborate bacteriological examinations arrives at the following conclusions: Absolute sterilization of the infected hands with the chemical solutions generally employed is practically impossible in the time usually allowed for that purpose. The most certain method consists in scrubbing the hands with soap and hot water for five minutes, then scrubbing for the same length of time in 90 per cent. alcohol, and finally immersing them in an antiseptic fluid. If rapid disinfection is desired, they may be scrubbed for five minutes in alcohol.

Secondary Hemorrhage from the Pedicle.

Tait (*Medical Press and Circular*, July 3, 1895) defends the Stafford knot, which, it has been claimed, is not absolutely reliable. While he does not believe that any ligature is perfect, he affirms that the knot can always be depended on if the following precautions are observed: 1. If the pedicle is long and round, it should be tied as far from the uterus as possible. 2. In passing the ligature a cutting-needle must never be used, and veins should always be avoided. 3. The "slack" of the knot must be taken in by drawing upon the ends several times, then after securing the first hitch the pedicle is divided, the second hitch being secured at the end of the operation, after

retightening the first. 4. The division of the pedicle is a most important detail, to the neglect of which many cases of slipping are due. The writer emphasizes the fact that it makes little difference how much tissue is left on the distal side of the ligature; a short-cut pedicle, and especially one that is divided straight across, is always dangerous. If it is thin and broad, it should be divided as in making the flaps in an amputation.

Membranous Dysmenorrhœa.

Duke (*Medical Press and Circular*, July 10, 1895) has met with satisfactory results with the following treatment: The os externum is scarified at intervals of three or four days between the periods; just before the flow is expected the cervix is dilated, the interior of the uterus is thoroughly curetted, and a spiral wire stem is introduced, which is worn continuously during at least three subsequent periods, the patient being directed to take hot vaginal douches even when menstruating. No harm has resulted from the use of the stem, and the patient is able to attend to her ordinary duties.

Normal and Pathological Positions of the Uterus.

Mackenrodt (*Archiv für Gynäkologie*, Band xlviii. Heft 3) summarizes a paper on this subject as follows: Contrary to the usual statement the pelvic fascia is not perforated by the vaginal canal, but surrounds and sends off to the cervix and vagina firm bands, those attached to the latter forming with it the strongest point of resistance to the abdominal pressure. The cervix uteri is so attached by the pelvic fascia as to occupy the position of slight anteflexion seen in the embryo. This normal flexion takes place in the cervix, the corpus uteri being inclined forward, while its axis remains perfectly straight. The uterus is kept in a position of anteversion by its ligaments, but remains passive, in the direction of the upper portion of the cervix. Its own weight and the intra-abdominal pressure also assist the organ in maintaining its normal position. The perineum offers only a slight resistance to the intra-abdominal pressure. The real support of the uterus in its normal position is afforded by the attachment of the pelvic fascia to the cervix. Hence the deduction that the true cause of posterior displacements of the organ is to be sought for in relaxation of this fascia. In prolapsus the same condition is present plus atrophy of the muscles forming the pelvic floor, which may be due as much to general as to local causes.

Papillary Growths of the Ovary.

Pfannenstiel (*Ibid.*) concludes an elaborate paper on this subject with these practical deductions: The clinical history and prognosis of these neoplasms vary greatly. While papillary parovarian cysts and hydrops folliculi are quite innocent, ovarian sarcoma and carcinoma of the papillary variety are extremely malignant. Between these extremes stands papillary adenoma, the prognosis of which is favorable, provided that the entire tumor is removed and there are no metastases on the peritoneum. Even when portions of the tumor are left behind, the progress of the case to a

fatal termination is slow. On the other hand, a considerable proportion of these papillary cysts are primarily carcinomatous. Malignant degeneration of a true adeno-papilloma is by no means so common as has been stated. Removal of the tumor without delay is the only proper course to be pursued, since we cannot certainly tell beforehand whether it is malignant or not; even in the case of a growth which is histologically benign the development of secondary masses in the peritoneum must render the prognosis less favorable. Contact of the fluid with the peritoneum during the operation should be avoided, and explorative puncture is especially reprehensible. The opposite ovary should be removed in every case of this nature, even when it is microscopically normal, since there is great probability that if left it will also become the seat of a papillary growth. The urgent wish of the patient expressed before operation should alone induce the surgeon to vary from this rule.

The Ovaries in Osteomalacia.

Rossier (*Ibid.*) made careful examinations of the ovaries in three cases in which castration was performed for the cure of osteomalacia. To the naked eye they showed nothing abnormal except general hyperæmia. Microscopically the stroma and follicles presented a normal appearance, but in the cortical substance the vessel-walls were hypertrophied and were the seat of extensive hyalin degeneration. Whether this points to a peculiar condition of the blood or not is mere inference. As regards the etiology of the disease, the writer regards Fehling's explanation as the most plausible, that it is a tropho-neurosis of the bones due to some reflex influence originating in the ovaries.

Changes in the Female Genital Organs in Basedow's Disease.

Theilhaber (*Ibid.*) from personal observation in several cases infers that in certain individuals who are predisposed to morbus Basedowii it may result from pathological conditions of the pelvic organs, while, conversely, disturbances of these organs may be directly due to the disease itself. Pregnancy, hemorrhages, and operations, especially castration, may be etiological factors. Atrophy of the uterus and adnexa may result, as shown by the fact that menstruation is always scanty or absent. That more cases have not been reported is doubtless due to the fact that few patients have been carefully examined with the view of determining this point. This atrophy is due to vasomotor influences, and not to anæmia, as is usually stated. In a case of the writer's, atrophy of the uterus preceded the usual signs of the disease. With improvement in the patient's condition the organ may return to its normal condition, as in cases of hyperinvolution during lactation.

As a practical deduction from the foregoing the writer states that young women with Basedow's disease should be advised not to marry, while the married are warned that the course of the disease may be unfavorably affected by pregnancy and the puerperium, and that the children which they bear are likely to be highly neurotic. Atrophy of the genitals demands no treatment, which, in fact, is useless. The prognosis is not hopeless, since

their functions may be restored with an improvement in the disease. Local treatment is only required in the rare cases in which the existing anæmia is increased by profuse uterine hemorrhages, when curettage is indicated. Neoplasms should, of course, be dealt with according to the usual rules.

Castration for the cure of Basedow's disease has been advocated by Blocq, but there are no scientific grounds for its support.

Sarcoma Deciduo-cellulare.

Launen (*Ibid.*) describes a case of this rare neoplasm in which he diagnosticated the condition by the examination of tissue removed with the curette, and extirpated the uterus successfully a few days later. Seven months after the operation the patient was perfectly well and had gained twenty pounds in weight. This case was the fifth in which a radical operation had been performed, but only the second in which the patient was still living. The diagnosis was made from the history of a previous pregnancy and abortion, irregular hemorrhages and foul discharge, accompanied with septic symptoms, vomiting, and cachexia. On examining the uterine cavity with the fingers a soft neoplasm could be felt, portions of which were removed and examined microscopically, when the diagnosis was confirmed by finding processes of decidual cells which invaded the muscle-fibres, thus proving the malignancy of the growth as well as its decidual origin. The writer concludes that while one may not succeed in removing a specimen for diagnostic purposes which presents such a typical appearance, the clinical history will at least make it clear that a malignant intrauterine growth exists, and that total extirpation is accordingly indicated.

PÆDIATRICS.

UNDER THE CHARGE OF

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Lead-palsy in Children.

Newmark (*Medical News*, May 11, 1895) reports a case of lead-paralysis in a girl of six years, who had been exposed to the drug by sleeping in a crib which had been painted with a mixture containing white lead; this covering of paint was very slow in drying, requiring many months, and the patient was in the habit of scratching it off with her finger-nails. The blue line on the gums was well marked. There was bilateral wrist-drop; on the

right side all the muscles supplied by the radial nerve were paralyzed, except the triceps and supinator longus; on the left side the triceps, supinator longus, and abductor pollicis longus were preserved. Fibrillary twitchings were absent, but a jerky tremor was observed. The triceps-reflex was present in each arm, sensibility was intact, and the affected muscles gave complete reaction of degeneration.

The patient was able to walk, but she occasionally stumbled, owing to failure to clear the ground completely, for there was bilateral ankle-drop. She could, however, extend the proximal phalanges of the toes quite well, this movement being the only one that could be executed by muscles supplied by the external popliteal nerve. The tibialis anticus was also affected, and all the affected muscles showed the reaction of degeneration.

The case illustrates the fact signalized by Putnam that in children it is the rule for the legs to be "affected as much as the arms, or more, as in paralysis from alcohol and arsenic, the symptoms generally appearing first in them." It is also to be noted in this case that, although the arms and legs were equally affected, functional recovery took place much earlier in the former than in the latter. Chapin, in two cases, and Sinkler, in one of his three (*Medical News*, July 28, 1894), made the same observation; and according to Newmark's study no case has been found where the disorder persisted in the upper extremities after the lower had completely recovered.

Hypertrophic Cirrhosis with Chronic Icterus in the Child.

Gilbert and Fournier (*Revue Mensuelle des Maladies de l'Enfance*, July, 1895, p. 309) report seven cases of hypertrophic cirrhosis occurring in children or adolescents, the *début* of which dated back to ages varying from five and one-half years in the youngest to seventeen years in the oldest of the cases described, thus indicating that the disease is not excessively rare in childhood. In general characteristics the clinical picture of the disease in the child differs in no essential from that presented in adult age. There is the hypertrophy of liver and spleen and the deformations which are thus produced, the jaundice with its train of secondary symptoms, the same absence of ascites, and the maintenance, for a long time, of the appetite and general health. There are, however, some special points of distinction to be noted in the author's cases. In three of these the hypertrophy of the spleen greatly exceeded that occurring in the liver, so that while the latter organ was found to extend only one or two fingers' breadth below the false ribs, the spleen filled the entire left flank, reaching the umbilical line and descending well into the pelvis. Such a disproportion between the liver and spleen does not occur in adult cases, and this feature in the cases under discussion is thought to pertain especially to childhood and adolescence.

Another peculiarity in three of the cases was found in certain nutritive changes in the bones of the phalanges of fingers and toes, and in the extremities of other bones—alterations which have not been hitherto described in connection with this disease. In the first case the distal phalanges of the fingers and those of the great toes were enlarged to resemble a drum-stick; the lower extremities of the femurs and both ends of the tibiæ were also enlarged, and the knee-joints were painful and contained a small effusion. In

the second case the wrists and the tibio-tarsal articulations were quite painful. In the third patient the lesions were confined to the distal phalanges of the fingers, but were well marked. In these cases the lesions resembled those described by Marie under the name of *ostéo-arthropathie hypertrophiante pneumique;* but a like explanation could not here be invoked, since in the second case these lesions were very marked, while the hypertrophy of the liver and spleen was too slight to interfere sufficiently with the activity of respiration.

A third point to which attention is directed is the retardation in development manifested by such patients. This was especially noticeable in a youth of nineteen years, whose disease began at seventeen years of age; his height and weight were much inferior to those of most young men of his age, being about the average of a boy of fourteen or fifteen years; he was beardless, and upon the pubes and in the axillæ the hair was rudimentary; the limbs were slender and the muscular system weak.

Raynaud's Disease in a Child with Hereditary Syphilis.

Krisowski (*Jahrbuch f. Kinderheilk.*, 1895, Bd. xl. S. 57) reports a case of local asphyxia and symmetrical gangrene in a child of three years of age suffering from hereditary syphilis. For three months previous to his first observation local asphyxia of the fingers and tips of the ears occurred whenever he was taken out into the open air. The parts became cadaveric in hue during the exposure, and then, after returning to the house, took on a violaceous tint, which after some hours gradually gave place to the normal coloring. The reaction was, as is usual, attended with considerable pain. These paroxysms had occurred for two months, when, after an exposure, the discoloration of the ears did not subside, and vesicles appeared upon the superior border, to be succeeded by plaques of gangrene the size of a bean, occupying upon each ear a symmetrical area of the superior border and extending upon the concave face of the pinna. The skin alone was involved. Taking into consideration the diathesis of the patient, the author began specific treatment (mercurial inunctions and potassium iodide), which produced a rapid cure.

Hydronephrosis of Congenital Origin in a Child.

Martin, of Geneva (*Revue de Chirurgie*, 1895, No. 4, p. 324), reports the observation of a boy of two and one-half years brought to the hospital for a progressive enlargement of the abdomen. A rounded tumor occupied the left hypochondriac, umbilical, and hypogastric regions, and extended several fingers' breadths beyond the median line. The growth appeared distinctly limited and separated from the liver by a furrow. Fluctuation was distinct. Puncture with the aspirator-needle gave issue to 600 grammes of clear, transparent fluid containing urea and cellular elements of the kidney. Nephrectomy was accordingly done. The cystic tumor, about the size of a child's head, contained about a litre of liquid. The opening of the ureter was found at the lower portion of the sac. It was exceedingly narrowed, scarcely permitting the passage of a very fine probe, and passed very obliquely

through the wall of the sac. To this excessive narrowing of the ureter the author attributes the causation of the hydronephrosis.

Multiple Angiosarcomata in a Newborn Infant.

Karewski (*Revue Mensuelle des Maladies de l'Enfance*, July, 1895) reports the unique case of a newborn infant that presented over the entire surface of the body small, soft, subcutaneous tumors, which had no connection with the bloodvessels or nerves. These growths gradually increased in size until at the age of four months they reached the size of the infant's fist; the skin covering them was marked with dilated bloodvessels. One of the tumors, extirpated for examination, rapidly recurred; sections of the growth showed the structure of an angiosarcoma. Though the child had developed normally up to this age, a marked degree of leucocytosis had existed for some time, the white corpuscles numbering three times the normal. The author regards the case as demonstrating that sarcoma may take its point of origin from the adventitious tunic of the bloodvessels, a question which up to the present has been in dispute.

Retropharyngeal Abscess subsequent to Mumps.

Hand (*Archives of Pediatrics*, July, 1895) reports a case of mumps in a boy of twenty-two months, the subsidence of the parotid inflammation being followed by enlargement of the lymphatic glands at the angles of the jaw, by an extremely irregular fever, and by intense anæmia. No cause could be assigned for the persistent temperature-elevation, which followed the hectic type, until about two weeks after the onset of the parotitis, when the presumptive diagnosis rested between tuberculosis and retropharyngeal abscess. Physical signs of either disease, however, were wanting, but attacks of cyanosis and trouble in swallowing now began to be noticed. The pharynx, except for slight catarrh, exhibited no abnormality, and continued so for eleven days longer, when after an interval of forty-eight hours between visits a fluctuating swelling was observed nearly occluding the pharynx. Incision of the abscess was followed by rapid subsidence of symptoms, convalescence being interrupted only for a day by incipient mastoiditis.

The case is noteworthy for the slow development of the abscess, since the process in children is rarely prolonged beyond a week. In Hand's case a hectic type of fever was recorded for fully three weeks, and no cause for it could be assigned until the abscess rather suddenly made its appearance.

Suppression of Urine in Diphtheria.

Wilde (*British Medical Journal*, May 11, 1895) records three cases of pharyngeal and nasal diphtheria in which death resulted from suppression of urine. The observation is of interest as bearing upon one of the objections recently raised against antitoxin, since two of the cases were treated before antitoxin was in general use, and the third, although clinically indistinguishable from true diphtheria, was not bacterioscopically confirmed, and the patient therefore was not injected.

Few deductions, the author remarks, can be made from such a small series

of cases, but certain features were present in all three. The type of the disease was very severe, and there was evidence of a general systemic infection against which the most active treatment was of no avail. The nasal cavity was implicated in each case, and pallor, languor, and debility, with the physical signs of peripheral paralysis, were prominent. In two of the cases the supervention of anuria occurred in the afebrile period of the illness, and it was accompanied by profuse diarrhœa and vomiting. It was of gradual onset, and the urine obtained before total suppression contained a considerable quantity of albumin without casts. The marked elective incidence of the diphtheria virus on peripheral nerve-tissue, and the fact that a local diminution of the renal blood-pressure leading to suppression may be produced by paralysis due to nervous injury, led the author to attribute the cause of anuria in these cases to nerve-degeneration. Moreover, the frequent association of an intractable and copious vomiting and diarrhœa might indicate a profound interference with the functions of the abdominal sympathetic system, leading to the blood-flooding of the splanchnic area and the consequent lowering of the renal blood-pressure to the point at which urinary filtration can no longer occur.

Treatment of Empyemata in Children.

Edmund Cantley, of London (*International Medical Magazine*, 1805, iv., No. 5, p. 329), publishes his deductions in regard to the treatment of this interesting condition founded upon the records of eighty-six cases under twelve years of age, most of which were treated in St. Bartholomew's Hospital from 1883 to 1893. Of these cases no less than eighty-four were instances of unilateral effusion. The patients had been under the care of seven different physicians, and the surgical treatment was carried out by a much larger number of surgeons.

The author believes that the assertion that the chances of perfect cure are better under treatment by resection is not supported by clinical experience, since in the present series it is found that of the patients thus treated more were discharged with a sinus than in the case of those treated by incision. The duration of time during which the sinus is kept open depends upon the length of time the tube is kept in; this depends mainly upon the fancy of the operator. Early contraction of the side is more likely to follow resection than incision. The indications for resection, he states, are as follows: 1, where the ribs are so close together that it is impossible to drain the cavity without it—a condition that rarely occurs in children and only likely to be found in long-standing cases; 2, when drainage is found subsequently to the simpler operation to be imperfect, the indications consisting in a high temperature and an offensive discharge; and, 3, when the lung has re-expanded and the chest-walls contracted, and yet the sinus does not close; resection of portions of several ribs is generally required in such cases.

In cases of double empyema the best treatment, according to the author's conclusions, is simple incision and drainage, allowing an interval of a few days to elapse between the two operations. More particularly, in cases of double general effusion, he thinks it better to aspirate first on both sides in order to diminish the quantity of fluid and relieve the heart from the encum-

brance to its action. Next day operation should be made on one side, and a few days to a week later upon the other side. The left side should be chosen for the first operation, and local rather than general anæsthesia employed.

In cases of general effusion on one side and localized effusion on the other, evacuation of the general effusion should be first done, and the operation repeated on the other side a few days later.

Finally, in cases of double localized effusion, simultaneous drainage may be adopted, but, though not necessary, it is a wise precaution to wait a few days between the two operations.

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

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The Stomach-contents in Carcinoma Ventriculi.

Since examinations of the stomach-contents for diagnostic purposes began to be common it has been the constant effort of clinicians to discover some sign characteristic of carcinoma of the stomach which would make possible its early diagnosis, while operative procedure might still be attempted with reasonable assurance of success. The absence of hydrochloric-acid production in carcinoma of the pyloric extremity was early observed, and, until a similar change was found to occur in cases of simple atrophy of the gastric mucous membrane, was regarded as of much significance in the diagnosis of the cancer.

In 1892 attention was called by Boas to the fact that, though in other forms of gastric disorder lactic acid might be present in the stomach in small amount, it was produced in any considerable quantity only in carcinoma. While later researches have confirmed this observation they have shown that lactic-acid production is not a constant phenomenon of carcinoma; that its absence should not be considered incompatible with the existence of cancer in any particular case; and that its excessive production can only occur in the absence of hydrochloric acid and when the motor activity of the stomach is impaired.

Study of the lab-ferment, of pepsin-production, and of the occurrence of ordinary fermentative processes has yielded nothing as yet characteristic of carcinoma, and, excluding the rare cases in which fragments of the tumor have been discovered, the same may be said of microscopic examinations.

In a recent article in the *Deutsche medicinische Wochenshrift* (1895, No. 5, 73) Oppler discusses the relations of the various phenomena observed in carcinoma of the stomach, and attempts their classification in the various stages of the disease and in different locations of the tumor. He has furthermore particularly investigated the relation to carcinoma of *sarcina ventriculi*

and of certain long, slender bacilli frequently found by him in the stomach-contents in such cases.

The first of these micro-organisms, *sarcina*, is usually described as a frequent ingredient of the gastric contents of carcinoma, but this Oppler denies. He has repeatedly introduced *sarcina* in pure culture into the stomach in carcinoma cases, and has always in advanced cases noticed its disappearance in the course of twenty-four hours. In two cases *sarcina* was found early in the disease while hydrochloric acid was still present, but suddenly disappeared a few days later when hydrochloric acid ceased to be present and lactic acid began to be formed in considerable quantity. Coincident with the disappearance of *sarcina* was the appearance of long, slender bacilli, which had been absent as long as hydrochloric acid continued. These soon became very numerous, forming long chains and masses, almost filling the interstices between the fragments of undigested food.

These observations are believed by Oppler to throw much light upon the processes occurring in the stomach in carcinoma. The ability of *sarcina* to develop in the presence of hydrochloric acid is well known. Its presence, then, during the early stages of the disease depends upon diminished motor activity of the stomach and consequent stagnation of its contents. In later stages, after the disappearance of hydrochloric acid and the establishment of the lactic-acid fermentation, the conditions are favorable to the development of the slender bacilli above referred to, which multiply rapidly and displace the sarcina. Thus, while *sarcina* may be present in the early stages of carcinoma, it is invariably absent later in the disease. Since these changes depend for their production to a considerable degree upon the existence of diminished motor activity of the stomach, they are usually observed earlier in the course of the disease when it is located in the pylorus than when its site is elsewhere in the gastric wall.

Oppler would accordingly formulate the conditions in carcinoma of the stomach as follows:

1. In cases of preserved motor activity (as, for example, in carcinoma of the curvatures or walls), hydrochloric acid is often absent, occasionally lactic-acid fermentation, particles of the tumor and bacilli are found; *sarcina* never.

2. When the motor activity is decidedly impaired hydrochloric acid may be either present or absent.

a. When present (as in the early stages of cancer of the pylorus) *sarcina* may be found, but never lactic-acid formation nor the slender bacilli.

b. When hydrochloric acid is no longer present (as in the later stages of carcinoma of any portion of the stomach) lactic-acid formation is pronounced, and with it large numbers of the slender bacilli. There is a tendency to gas-formation. Sarcina is always absent.

The conditions enumerated under 1 and 2, *a*, may pass into those of 2, *b*, as the disease progresses.

Suppurative Parotitis Caused by the Typhoid Bacillus.

To the list of suppurative processes complicating typhoid fever, in which the typhoid bacillus alone has been found as the cause of the abscess-formation, Janowski (*Centralblatt f. Bakt. u. Parasitenkunde*, 1895, xvii., No. 22, 785) has recently added a case of suppurative parotitis.

The patient, a young man, had been sick in the hospital seven weeks, during which time he had greatly emaciated; had had more or less fever, and toward the last had developed hemorrhagic nephritis and a tender enlargement of the right parotid gland. The diagnosis of typhoid fever was first made on the autopsy-table, Peyer's patches showing distinct appearances of recently healed ulceration. The right parotid gland was found to be infiltrated with pus, which was in places collected in small abscesses. Cultures from this pus developed only the typhoid bacillus, whose identity was carefully proved by comparison with known cultures of the typhoid bacillus and of the *bacillus coli communis*.

As has been repeatedly observed in connection with suppurative processes due to the *bacillus typhosus*, the progress of the complication was slow, so that the parotitis became fully developed only after the termination of the primary disease.

Those cases of suppurative parotitis occurring in connection with typhoid fever, which have heretofore been examined bacteriologically, have been found to be due to the ordinary pyogenic bacteria, *staphylococcus pyogenes aureus* and *streptococcus pyogenes*, or to have contained one or the other of these germs in association with the typhoid bacillus. Janowski's is the first case in which the *bacillus typhosus* has been found alone.

A Method of Quick Examination of Pathological Tissues for Diagnostic Purposes.

It is very often desirable to be able to make a diagnosis of tumors and other pathological tissues at the time of operation or as soon thereafter as possible. Many difficulties have attended the employment of frozen sections prepared in the ordinary way, but by a slight modification of the procedure Cullen (*Centralblatt Allg. Path. u. f. Path. Anat.*, 1895, vi., No. 11, 448) has been able to obtain well-stained and satisfactory sections in fifteen minutes.

Frozen sections are first made, and are collected in normal salt-solution. They are then immersed for five minutes in a 50 per cent. solution of formalin, for three minutes in 50 per cent. alcohol, for one minute in absolute alcohol; then washed in water and stained in hæmatoxylin and eosin after the ordinary method; are dehydrated, cleared, and mounted in balsam.

The difficulty attending this method is that the blood is lost. By a somewhat longer process this may be avoided. Small pieces of the tissue to be examined are immersed in a 10 per cent. solution of formalin for two hours. Frozen sections are then made, and are carried through 50 per cent. alcohol, absolute alcohol, water, hæmatoxylin, etc., as before.

These methods have yielded good results at the laboratory of the Johns Hopkins Hospital, and are well spoken of by Prof. von Kalhden, of Freiburg.

Heredity and Tuberculosis.

Kuthy (*Pester Med.-Chirurg. Presse*, 1894, No. 51) has attempted by a statistical study of 432 cases of tuberculosis to determine the influence of heredity in the etiology of that disease. In 23.8 per cent. of the cases one or both parents had the disease; in 11.5 per cent., the father; in 9.9 per cent., the mother, and in 2.4 per cent. both parents.

As control he inquired very carefully into the family history of 108 non-tubercular patients. Of these, 28.5 per cent. gave a history of tuberculosis in the parents.

Bearing in mind the great tendency of inherited tuberculosis to show itself early in life, Kuthy investigated all the cases of tuberculosis with regard to the time of their beginning. In only 7.2 per cent. did the disease develop before the thirtieth year.

From these statistics Kuthy infers that heredity plays but a subordinate *rôle*, if any, in the causation of tuberculosis, both as regards direct transmission of the germs of the disease and in the induction of the necessary predisposition. It is not an important factor in its etiology.

[Though these statistics are interesting and the conclusion arrived at is suggestive, they are open to the grave criticism of being derived from a too limited class of cases, leaving out of account entirely the great prevalence of tuberculosis in young children.]

The Examination of Sputum for Tubercle Bacilli.

Spengler (*Deutsche med. Woch.*, 1895, No. 15) recommends the employment of pancreation for the digestion of sputum preparatory to its examination for tubercle bacilli. The procedure is as follows: Equal parts of sputum and lukewarm alkaline water are thoroughly mixed with from 2 to 15 grains of pancreatin, and are allowed to digest at the body-temperature for from two to three hours, when a few drops of strong carbolic acid are added to prevent putrefaction. A sediment quickly forms. The supernatant fluid is poured off, fresh alkaline water is added, and a further digestion in the incubator is allowed. The sediment after this second digestion is smaller. It is collected on filter-paper and is examined in the usual way for the *bacillus tuberculosis*.

By this method the sediment from a day's sputum is so small, as a rule, that a few cover-glass preparations only are needed for its thorough examination. There is no impairment of the staining qualities of the bacilli, and Spengler has found this a very quick and reliable method of examination when the tubercle bacilli are present in small numbers. It is, of course, unnecessary when they are abundant.

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CONTENTS.

ORIGINAL COMMUNICATIONS.

PAGE

Etiology and Treatment of Certain Kinds of Cough. By Beverley Robinson, M.D. 503
Syphilis and Lardaceous Disease. By F. Parkes Weber, M.A., M.D., M.R.C.P. Lond. 513
Iodoform-ointment Injections in the Treatment of Suppurative Adenitis of the Groin. By James R. Hayden, M.D. 519
Fever in the Course of Bright's Disease and in Uræmia. By Alfred Stengel, M.D. 522
Retro-position of the Uterus. By George W. Jarman, M.D. 537
An Investigation into the So-called Lymphoid Nodules of the Liver in Abdominal Typhus. By Walter Reed, M.D. 543
A Clinical Study of Three Cases of Persistent Absence of the Gastric Secretory Function. By D. D. Stewart, M.D. 560

REVIEWS.

Leprosy: in its Clinical and Pathological Aspects. By Dr. G. Armauer Hansen and Carl Looft. Translated by Norman Walker, M.D. 586
Atlas of the Diseases of the Skin, in a Series of Illustrations from Original Drawings, with Letter-press. By H. Radcliffe Crocker, M.D., F.R.C.P. Lond. . 587
Indigestion, an Introduction to the Study of the Diseases of the Stomach. By George Herschell, M.D. 589
Digestive Proteolysis, being the Cartwright Lectures for 1894. By R. M. Chittenden, Ph.D. 589
A Manual of Diseases of the Ear, for the Use of Students and Practitioners of Medicine. By Albert H. Buck, M.D. 591

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

PAGE

Anarcotine 593
Treatment of Diabetes . . . 593
Treatment of Enteric Fever on the Antiseptic Principle . . . 595
Treatment of Perityphlitis . . 596
Anti-choleraic Inoculations in Cachar 597
Calomel 598
Creosote 598
Dangers of Strychnine in Snake-bite 599
Tuberculin 599

MEDICINE.

Monarticular Rheumatism. . . 599
Senile Epilepsy and Compression of the Carotid 600
Immunizing and Curative Effects of Antitoxic Serum from Sheep and Dogs in Typhoid Fever . . . 600
The Cause of Death in Pneumonia . 601
Collective Investigation in the Use of Diphtheria-antitoxin in Germany 602
Changes in the Cerebellum in Tabes Dorsalis 602
Basedow's Disease 602
Gangrene of Leg in Typhoid Fever . 603
Second Attack of Diphtheria . . 603
Taches Bleuâties 604
Stokes-Adams Disease 604
Vasomotor Œdema without Albuminuria 605

SURGERY.

	PAGE
Laminectomy for Paraplegia Produced by Angular Curvature of the Spine	606
Case of Double Mastoid Disease with Septic Thrombosis of Lateral Sinus	607
Case of Aural Pyæmia without Sinus Thrombosis	607
Punctured Fracture of the Skull	608
The Curability of Cancer when the Lymph-nodes are Involved	608
Toxins of Erysipelas and Bacillus Prodigiosus in Malignant Tumors	608
Resection of the Nasal Bones	609
Is Disinfection of Wounds Possible?	610
Cerebral Tumor	610
Regression of Goitres	611
Drainage in Acute Peritonitis	611
Treatment of Sprained Ankle	612
Radical Treatment of Hydrocele	612
The Question of Stitch Abscesses	613
Treatment of Intestinal Invagination	613
Early Motion in Fractures, Especially of the Lower Extremity	614

OBSTETRICS.

Three Cases of Scleroma Neonatorum	614
Modified Milk	615
Measuring the Outlet of the Pelvis	615
The Bacteriology of the Birth-canal	616
Contracted Pelvis	616
Tubal Gestation of Two Months followed by Rupture	616
Embryotomy in Neglected Transverse Presentations	617
Puerperal Tetanus Treated by Tizzoni's Antitoxin	617
The Anatomy of the Pubic Joint	617
Treatment of Tubal Gestation by Extirpation *Per Vaginam*	617
Pregnancy and Labor Complicated by Ovarian Tumors	618
Treatment of Abortion	618
Two Cases of Fœtal Death during the Last Months of Pregnancy from Direct Violence	619
Cæsarean Section in Uterus Didelphys	619
The Disinfection of the Hands	619
Pregnancy Complicated by a Large Vesical Calculus	620

GYNECOLOGY.

Rapid Dilatation of the Unimpregnated Uterus	620
Early Diagnosis of Cancer of the Cervix	620
A More Radical Method of Performing Hysterectomy for Cancer of the Uterus	621
Ligation of the Uterine Arteries for Uterine Fibroids	621
The Technique of Vagino-fixation of the Uterus	621
Ichthyol in Anal Fissure	622
Igni-extirpation of the Uterus for Carcinoma	622
Hysterectomy with the Cautery	623
New Operation for Retro-displacement	623
The Avoidance of Infection in Hysterectomy with the Thermo-cautery	623
Influence of Castration on Metabolism	624
Freund's Operation for Prolapsus Uteri	624
Adhesive Peritonitis following Cœliotomy	625
The Anatomy of Carcinoma Uteri	625

PÆDIATRICS.

Fresh-air Treatment of Pertussis	626
The Immunizing Effects of Antitoxin	626
Diphtheritic Lesions of the Nervous System	628